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ABSTRACT

The purpose of this handbook is to help vocational educators and others provide appropriate vocational education for handicapped students through the modification of vocational programs. (A companion user's guide and an annotated bibliography are also available--see Note.) Possible uses include vocational instruction, administration, interagency and interprofessional cooperation, preservice education, inservice education, and research. Chapter 1 is an introduction. Chapter 2, Working with Others, examines the process for working with resource persons while teaching special needs students. It also covers potential resources located inside the school and out in the community. Chapters 3-8 deal with these specific handicapping conditions: emotional impairments of learning, learning disabilities, mental retardation, visual impairments, hearing impairments, and physical impairments. Each chapter is divided into three parts: (1) recognition of handicapped students, (2) strategies to modify vocational programs and to instruct students, and (3) information on existing exemplary programs and techniques already developed in vocational classrooms. Details concerning formal and informal vocational assessment are found in chapter 9. Chapter 10 presents nine models of vocational service delivery to handicapped students. (YLB)

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PUZZLED ABOUT EDUCATING SPECIAL NEED STUDENTS?

A Handbook on
Modifying Vocational Curricula for Handicapped Students

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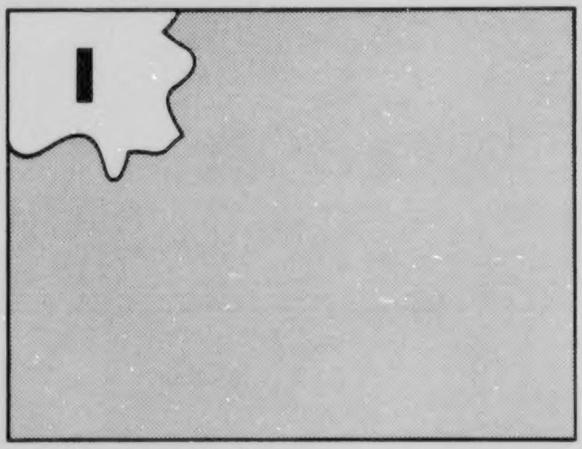
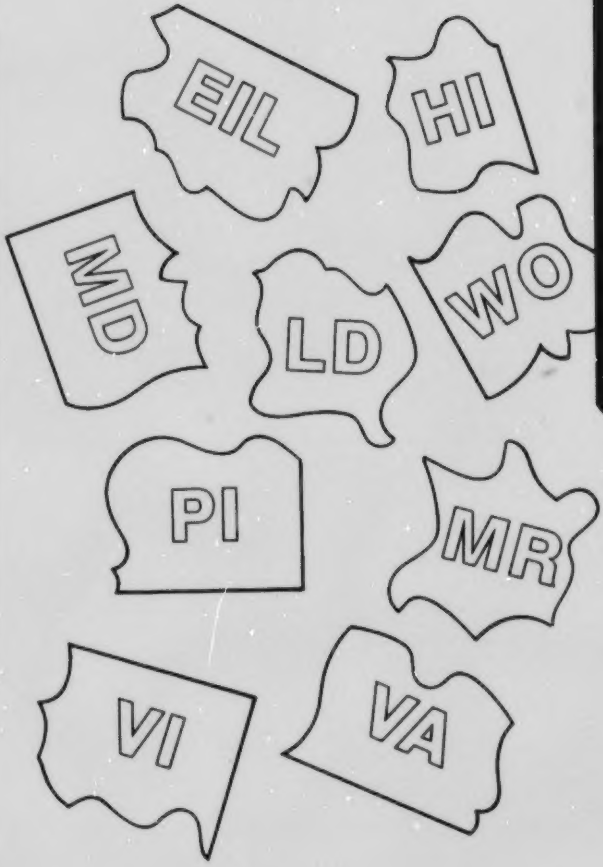
CHAPTER I



Introduction

Lloyd W. Tindall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VOCATIONAL EDUCATION FOR HANDICAPPED STUDENTS

Vocational education teachers and others are being pressured to improve existing programs and develop new programs which will enable handicapped people to profit from vocational education. The goal of new and improved vocational programs is to increase enrollment in and completion of vocational programs by handicapped people, to enable them to learn employable skills. Pressure and encouragement to achieve this goal is coming from special education teachers, guidance and rehabilitation counselors, parents, advocacy groups and, of course, from handicapped people.

The political and economic climate directs vocational educators toward this goal. Handicapped youth are leaving the educational system without the skills necessary to compete in the working world. Less than forty percent of all handicapped people are employed during a typical year. The average wage of those handicapped people who are employed is much lower than their nonhandicapped counterparts.

Legislation passed in recent years mandates that handicapped people be given the opportunity to acquire vocational education. Although Public Law 94-482 (Education Amendments of 1976, Title II, Vocational Education) has set aside ten percent of the total grant for handicapped students, only two percent of the students enrolled in vocational education programs are identified as handicapped. However, Federal and State legislation, regulations implementing the legislation, and court decisions are beginning to have an effect upon the vocational education of handicapped students. Regulations which implement Public Law 94-142 (The Education of All Handicapped Children Act of 1975) state that "Each public agency shall take steps to ensure that its handicapped children have available to them the variety of educational programs and services available to nonhandicapped children -- including vocational education". Vocational education is to be part of the free appropriate public education detailed in Public Law 94-142. This legislation mandates a written Individualized Education Program (IEP) for each handicapped student.

Other legislation, in the form of Public Law 93-112, the Rehabilitation Act of 1973, has much to say about program and facility accessibility for handicapped students and vocational education. According to this legislation, handicapped people are to be educated with people who are not handicapped, to the maximum extent appropriate to the needs of the handicapped persons. Handicapped students are entitled to an appropriate assessment followed by education designed to meet their individual needs. These public laws and their regulations refer to each other in that each law must be carried out in a compatible and cooperative manner with the parallel law.

PURPOSE

The purpose of this handbook is to help vocational educators and other individuals provide appropriate vocational education for handicapped students through the modification of vocational programs. Modifying vocational education programs means different things to different people. To some, it means a modification of all vocational curricula and materials for each specific disability. To others, it may mean modifying techniques and strategies used to teach handicapped students. This does not mean that modification of specific subject materials is to be neglected. Readers will find samples of modifications of instructional materials. The objective of the handbook is to prepare vocational teachers and others to know when to modify techniques, how to teach methods, and how to modify curriculum material.

A COOPERATIVE TASK

Vocational teachers cannot accomplish the huge task of modifying vocational curricula alone. Those who ask for improved vocational education and those agencies directly involved in public law, should also be involved. Interagency and interdepartment agreements must be made at state and local levels. Special education, vocational rehabilitation, guidance, and the school and community in general can be instrumental in a joint effort to help develop and improve vocational programs. Cooperation within the educational community, and between the educational and business communities, is vital to the success of vocational education programs for handicapped people. For this reason, the chapter on Working With Others preceeds chapters concerned with disability areas.

CHAPTER CONTENTS

The handbook is designed to help vocational educators, special education teachers, rehabilitation and guidance counselors, employers, parents, and others develop and support appropriate vocational education programs. Chapters three through seven deal with specific handicapping conditions. Readers can review ways to recognize handicapped students and to modify vocational programs. The third part of these chapters provides information on existing exemplary programs and techniques already developed in vocational classrooms. Details concerning formal and informal assessment are found in Chapter Nine. Chapter Ten covers a variety of vocational programs illustrating how services can be delivered to handicapped students.

An annotated bibliography which lists publications relating to the vocational education of handicapped students is included in the handbook. In addition to the handbook a User's Guide has been developed for use by State and local administration personnel who are responsible for providing workshops and inservice meetings on the vocational education of handicapped students.

USES OF THE HANDBOOK

The handbook can be used as an information and resource book for people charged with supporting and providing vocational education for handicapped people. Possible uses of the handbook include the following:

1. Vocational Instruction
    - to assist vocational teachers in modifying their vocational programs for handicapped students

- to assist special education teachers in teaching prevocational subjects and in helping and supporting vocational teachers
- to assist rehabilitation counselors so they work with secondary and postsecondary teachers in selecting and developing appropriate vocational programs
- to assist guidance counselors in helping students select programs and in working with teachers as they develop vocational programs
- to assist sheltered workshop teachers in developing and modifying vocational programs

2. Administration

- to assist State and local administrators, special needs supervisors and others in providing workshops and inservice meetings for teachers of handicapped students
- to assist administrators in providing the appropriate models of service delivery to meet the needs of their particular districts

3. Interagency and Interprofessional Cooperation

- to assist members of the Individualized Education Program Team as they develop each handicapped students IEP
- to assist parents in working with their own students and in evaluating their students IEP
- to assist employers in modifying training programs, materials and job redesign for their handicapped employees
- to assist advocacy groups in formulating their requests for secondary and postsecondary program development
- to assist the formal and informal evaluators of handicapped students in the assessment of handicapped students

4. Preservice Education

- to assist department chairpersons and faculty who are developing preservice curricula

5. Inservice Education

    - to assist special needs coordinators and guidance counselors in developing inservice education programs for vocational and other teachers
    - to assist State level administrators in developing inservice education programs

6. Research

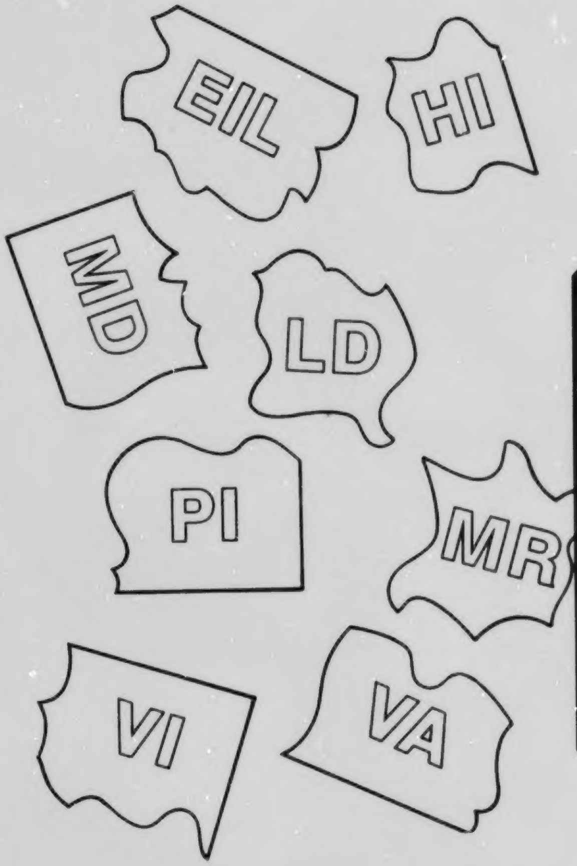
    - to assist researchers to assess the state of the art in vocational education of handicapped students
    - to assist researchers in literature reviews or modifying vocational curricula for handicapped students

Although the reader's primary concerns may focus on a specific disability, it is recommended that all of the chapters of the handbook be read as handicapped people usually have multiple disabilities. A knowledge of how to provide appropriate vocational education for students in all disability areas is necessary for the development of complete vocational education programs. In many instances, the techniques listed in one disability area are applicable and adaptable for use with students having disabilities in other areas.

CHAPTER II

Working With Others

Elizabeth Evans Getzel



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INTRODUCTION

As a vocational instructor you are well aware that what you teach in your classroom often has a direct effect on the type of employment your student seeks after graduation. You may have discovered that it is important for you to keep up with what is happening in your field, either in the business community or in the classroom. Perhaps you discuss changes in your area of teaching with a friend or relative who runs a business in the same field; or you share your ideas of teaching methods with another instructor on a regular basis. You have found it necessary to get out of your own classroom to obtain a more complete picture of how to better equip your students with the skills they need for employment.

In many respects, this is the meaning of working with others. It is a process of discovering resource persons inside or outside of the school, to assist you in educating your students. This is especially important when teaching a special needs student. The special needs student enrolled in your class may have several complex problems which are usually beyond the expertise of one professional. For example, you may have a student who is learning disabled. In this case, you would need to know his or her best method for learning your material. You may also need to know how to deal with any emotional difficulties this student may be experiencing due to past failures in school. As a vocational instructor, you are an expert in your area of training, but perhaps you need information on what various handicapping conditions mean and on how you can best accommodate your classroom materials to the special needs student.

When establishing cooperative or supportive working relationships you may be working with a special education teacher, a parent, or perhaps an employer from your community. The benefits of establishing these relationships with resource persons are many. The primary benefit is that cooperative relationships usually enhance the learning of your special needs student. This could be accomplished because 1) other professionals can work with you concerning specific techniques to use in teaching a handicapped learner; 2) training materials which you cover in the classroom can be reinforced in the resource room, in the student's home, or in the student's work experience placement; 3) the student's training is more coordinated and the student can benefit by learning from different individuals. The student's whole learning process is not an isolated part of his or her life. Learning takes place both inside and outside of the classroom. Your special needs student can see the relevance of what you are teaching when he or she is able to practice or test new learning in other areas.

In this chapter we will be examining the process for working with resource persons while you are teaching special needs students. Roles and responsibilities of individuals inside and outside of the school will be discussed. This chapter does not exhaust all possibilities you can develop with other professionals, etc., nor is it comprehensive in scope. The purpose of this discussion is to suggest a starting point for you to begin developing the kind of relationships you feel are necessary for teaching a special needs student. Additional references for further reading are located in the annotated bibliography included with this handbook or in the references at the end of this chapter.

To better assess how you could use additional resources in your class, we will first examine some models for time management in the classroom. The second and third sections of this chapter will then cover potential resources located inside the school and out in the community.

EVALUATING YOUR CLASSROOM

Two of the most common concerns vocational instructors express when teaching special needs students are the feeling that they do not have an adequate background for working with handicapped students and the worry that they cannot devote enough time to the special needs student without neglecting the rest of their class. These are two very real concerns and it is the intent of this section to discuss the time element in teaching a handicapped learner.

When evaluating your class and the management of your time, it is important to gain a perspective on those areas of your teaching schedule over which you do have control. Several areas to consider are student grouping patterns for learning or studying, the material the students will learn, the methods developed for learning, scheduling of materials (i.e. daily plans, semester plans, etc.), and evaluation of performance or grading. Essentially, these variables fall into three main categories which may help in initially thinking about time management skills and what aspects of these skills are needed in your classroom. (Redick and Redick, 1979, p. 196-197).

Managing Time

When evaluating what a special needs student will need to learn to complete your class, it is important to view his or her learning in relationship to the length of time you will have a student in your class. Therefore, when planning a student's learning on a daily basis, it is extremely important to get a total picture. For example, John will be in my class for one semester, or Mary will be in my class for one year.

Managing the Learning Process

You may have little control over your school's policy on grading. However, when teaching a special needs student remember those aspects of evaluating performance in which you do have control. As a vocational instructor, you determine what the student will need to learn, the methods by which you present the material to be learned, the evaluation process to be used to determine student performance, and the report (or grade) on how well the student mastered the material.

Managing the Grouping Structure

As a vocational instructor, you can determine how your students will be grouped in order to better facilitate learning. You may use individualized learning modules, have one large group for demonstration purposes, or have the class break up into small discussion groups. (Redick and Redick, 1979, p. 196-197).

Classroom Management Models

Based on these three main categories and the various aspects of learning over which vocational educators do have control, the following models have been developed by instructors in managing class time when teaching special needs students.

1. Model 1

   - The flexible variables are student grouping and learning activities. Students initially spend 10 minutes in a large group session, during which the teacher focuses on establishing a pattern for the day's work. They are then divided into small groups, where learning activities are designed to meet their specific needs. Though learning activities may vary, the objectives, content, time spent in particular groups and evaluation methods remain the same for each student.

2. Model 2

   - Students are divided into three small groups for the major part of the class period, but form a large group for the last 15 minutes of work. Group 1 starts with a teacher-directed activity for 15 minutes and then has 20 minutes of individual study. Group 2 follows the Group 1 schedule in reverse order, while Group 3 spends 35 minutes in individual study. The flexible variables in this situation are student grouping, content, learning activities and time spent in particular groups. All students are expected to meet the same objectives and are evaluated on a similar basis.

3. Model 3

   - Again, students are divided into three groups. However, each group covers the same content over the same time period. Objectives, learning activities and evaluation methods differ for each small group.

4. Model 4

   - The class is divided into three groups, with each group participating in a teacher-directed activity, a small group activity, and individual study. The sequence of these activities varies, with each group spending equal time in the same activity. In this model, content, learning activities, objectives, and evaluation methods are specifically designed for each group.

5. Model 5

   - This model is uniquely suited to programs where learning packages are used and basic core concepts

> are taught by the teacher. On Day 1 of a five-day instructional cycle, the teacher directs a large group session that concentrates on core concepts. On day 2, the class is divided by interests into small groups. On Days 3, 4, and 5, students study independently or in small groups, in either classroom or laboratory settings. The one variable that remains the same for each student is a study of the core concepts. All other flexibility variables depend on interest or the determined need of the student. (Redick and Redick, 1979, p. 197).

ESTABLISHING AN EFFECTIVE PROGRAM

We have evaluated some classroom management techniques which may help you organize your materials and mode of instruction when teaching a handicapped learner. In general, there are several points to consider as you prepare to accommodate a special needs student. The following suggestions have been developed by vocational instructors who have taught handicapped learners.

1. Meet the student.
    - Meeting with the special needs student before class begins can help you to establish rapport as well as gain valuable information concerning the student's level of functioning and prior educational background.
2. Arrange classroom tour.
    - Prior to the beginning of class, have the special needs student tour the classroom facilities to determine if there could be accessibility problems.
3. Learn about handicapped condition.
    - Become familiar with your student's condition by reading school records and meeting with school professionals and members of the student's family. Obtain pertinent information on how the handicapping condition affects the student, his or her acceptance of the condition, and his or her degree of functional ability. It is best to emphasize a student's abilities rather than disabilities.

4. Accept the student.

   - Accept and respect the special needs student as a unique person. Remember that students with similar disabilities are still individuals and should be recognized as such.

5. Avoid over-protection.

   - Safety is always an essential concern. Nonetheless allow the handicapped student to learn and grow on his or her own.

6. Adapt tasks.

   - The special needs student will often be able to participate in class without adaptations. However, if such accomodations are needed, ask the handicapped learner for suggestions. He or she may have useful ideas.

7. Provide time.

   - A particular disability may cause a special needs student to require more time to complete a project. Models of classroom organization which allow for flexible time allotment are helpful in these situations.

8. Encourage independence.

   - Encourage the special needs student to develop his or her own skills. Try to avoid doing a task for a student because he or she takes more time than others to master a skill.

9. Seek help.

   - As a vocational instructor, be aware of and seek help from other qualified professionals. Input from supporting personnel can assist you in planning and implementing an educational program for the special needs student. (Redick and Redick, 1979, p. 199-200).

DEVELOPING INSTRUCTIONAL SUPPORT WITHIN THE SCHOOL

The second step in the process of building support systems is to become aware of resource persons in your school and community, and how they can assist the special needs student in learning. The next two sections will discuss ways to alleviate concern about having an inadequate background for instructing handicapped students. The roles of several school personnel will be highlighted to provide a clearer understanding of their responsibilities and the ways you as a vocational instructor might work with them. In some schools, these resource persons may have different titles or different role definitions. Most importantly, begin thinking about cooperating with other school personnel and discovering ways you can work together with your special needs student.

Administrators

The school's program director, principal, and assistant principal are potential resource persons since they facilitate much of the programming (Phelps and Lutz, 1977, p. 137). Through various planned activities, it is possible for the vocational instructor to meet and discuss concerns with other instructors or individuals from the community. Inservice meetings are a means for teachers to meet together and share ideas and to begin developing cooperative teaching arrangements. Cooperative teaching arrangements do not necessarily mean a total change in curriculum. However, teachers could develop an arrangement in which similar subjects overlap into different areas. For example, a welding instructor had tried to get his students to write a short paper in this class concerning the various employment possibilities in the community. His students had not taken the initiative for this project despite the instructor's emphasis on its importance. During an inservice meeting, the welding teacher and the school's English teacher discussed using the paper as a mutual project and assigned as a paper for English class. The students in this case benefited in this exercise by learning community employment possibilities and by developing their English skills. Both teachers in this example were also pleased with the arrangement (Johnson, 1980, p. 32).

Through attending inservice meetings, it is possible that cooperative relationships can begin to develop among instructors and administrators.

Examples of ways in which you and your administrators can cooperate include:

1. Work with administrators to find a representative from the community or within the school (for example, a representative from special education) to speak at a staff meeting.
2. Participate in tours arranged by the administration to become familiar with the special education resource room. Or have special education personnel tour vocational education classes to facilitate an understanding of how cooperation could be developed.
3. Encourage administrators to permit time for conferences between a resource room teacher and a vocational teacher concerning a handicapped student. (Clark, 1979, p. 279)

These are but a few examples of ways in which you and the school's administrative staff can begin to open doors for supportive relationships.

Special Needs Coordinator

The special needs coordinator helps create the class environment most effective in assisting a special needs student to obtain skills. As a vocational instructor, it may be helpful to discuss techniques for resolving student difficulties in learning material with the special needs coordinator. He or she can help assess the problems a student may have in your class and obtain any special equipment needed to resolve a problem.

The special needs coordinator could work with you in the classroom or enhance communication among other professionals. The services he or she could provide include:

1. Reviewing vocational assessment results with you and discussing future training possibilities in the vocational classroom. Assisting in gathering information so that the student's vocational program fits the student's needs.
2. Discussing with special education teachers the level of difficulty and/or responsibility necessary in some vocational classes.

3. Developing inservices for vocational instructors on handicapping conditions of special needs student.
4. Relating or sharing information about other vocational instructors, how they handled similar problems with a special needs student in the classroom.
5. Inviting vocational instructors to an IEP meeting (if you are working on a secondary education level). (Duval, 1980)

Supporting the Special Needs Coordinator through participation in activities he or she may plan, or seeking his or her assistance in some of the areas previously listed, are ways in which a cooperative relationship can be built.

Special Education Teacher

The special education teacher typically provides supportive instruction. This instruction includes helping the special needs student develop a general knowledge in the area of his or her occupational interest. The special education teacher also helps to reinforce materials learned in class, provides supplemental instructional support in areas of basic academic skills, and assists in teaching the importance of developing good working skills.

As a vocational instructor involved in teaching a handicapped learner, you may need or want to confer with the school's special education teacher when you believe a student is experiencing difficulty and needs additional work on some materials. He or she may also be able to suggest techniques for presenting materials in class to enhance the special needs student's learning. The special education teacher may be able to utilize special education aids to help the student, or develop a behavior management program that reinforces the student's behavior in the vocational and special education classrooms.

It is possible for you and the special education teacher to develop a mutual understanding of how to cooperate by discussing which skills the special needs student must learn in order to enter the world of work. The sharing of ideas through this discussion enables the special education teacher and you to learn about each other's roles and responsibilities. This information is helpful when planning for formal or informal conferences concerning the special needs student.

In summary, the following points review the ways in which you, as a vocational teacher, can cooperate with the special education teacher:

1. Communicate on and mutually consider scheduling of a special needs student into vocational programs.
2. Jointly select materials for purchase to supplement handicapped students in regular vocational programs.
3. Schedule meetings on handicapped students (IEP staffings, etc.) based upon cooperative convenience.
4. The special education teacher can increase the vocational instructor's awareness of the handicapped through mini-workshops, successful placements, and using vocational instructors who have successfully mainstreamed special needs students as teacher trainers.
5. The vocational instructor can increase the special education instructor's awareness of the regular vocational program content,
6. Share instructional materials and equipment between the special education and vocational classrooms.
7. Exchange information on the special needs student's strengths and weaknesses to assist each other in developing methods to strengthen the student's weak areas. (Scott and Gill, 1979)

Resource Room Teacher

It is possible that the resource room teacher is also the special education teacher. The special education teacher often provides instructional support in a special education classroom or a resource room. It is also possible that resource room teachers are instructors in basic math or English skills.

Typically, the resource room teacher's responsibilities are to provide tutoring services to special needs students, and to reinforce particular subject areas (e.g., reading, writing, or math skills). The resource room teacher will work with the special needs student to help him or her improve basic skills to enhance the student's participation in your classroom. The student will also benefit from this experience in that the resource room teacher will work with him or her on improving his or her self-concept and attitudes toward learning. (Hatfield, 1977, p. 5)

You will want to build a cooperative working relationship with a resource room teacher when a special needs student experiences problems with your classroom materials due to reading level, writing ability, or math difficulties. You may also want to ask the resource room teacher for ideas on how to better instruct a special needs student so he or she understands your classroom materials.

Guidance Counselor

The guidance and counseling department in a school can be a valuable resource area for you and the special needs student. Before the student is placed in your classroom, the guidance counselor typically meets with the special needs student to discuss his or her strengths and weaknesses, to compile background information, and to set career goals. This initial meeting between the counselor and student can begin establishing the kind of program the handicapped learner needs. The guidance counselor's role might also involve referring the student, along with your input, to additional resource personnel to insure successful completion of your vocational class.

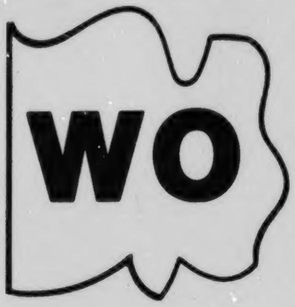
General areas which the guidance counselor may work with you and/or the special needs student are:

1. Conduct career assessment for the handicapped student
2. Develop and use community resources
3. Act as a liaison for the special needs student in the school setting
4. Assist in developing and mainstreaming individual learning programs (or the IEP) in cooperation with other educators and with parents
5. Consult with parents concerning career development of their children
6. Consult with other educators concerning the development of self-awareness skills and decision making in special needs students
7. Work with handicapped students in the selection of training opportunities and the selection of job possibilities
8. Carry out individual and group counseling with the special needs student on a regular basis. (Brolin and Gysbers, 1979, p. 261)

The guidance counselor acts in a supportive and complementary role. The counselor can provide information concerning a student's strengths and weaknesses and ways you can gear your instruction to increase your student's skills. Individual or group counseling may be useful for a student in cases where he or she appears to feel under stress, due to family or school problems. In many instances, the guidance counselor is the facilitator during family conferences at the school. He or she could also provide counseling in the area of job seeking or career planning.

Since vocational training is only one aspect of your handicapped student's career development, consider ways in which the guidance counselor could supplement the student's training by emphasizing other aspects of the handicapped learner's career development.

The special needs student, by the time he or she is involved in actual skill training, has gone through several other stages of development. During the elementary school years, the special needs student and guidance staff were involved with career awareness. The student was, for example, becoming more aware of his or her feelings and values, and learning communication skills for interacting with others. Occupational awareness developed as the student learned the value of work, what various occupations are, and developed a self-concept of himself or herself as a potential worker.



The second stage, career exploration, is usually emphasized during the junior high school years. During this time, the guidance counselor discussed specific career information with the student. They may have reviewed interests and abilities in depth and developed awareness of work habits and behaviors necessary for successful employment.

The third stage, career preparation, is typically emphasized in high school or post-secondary schools. Guidance and counseling activities involve helping the student to clarify his or her social and vocational knowledge and skills. Career choices begin to be more specific for vocational and academic instruction. The guidance counselor may conduct groups or work on an individual basis with the handicapped learner. These sessions involve giving interest inventories, counseling on career choices, or developing job readiness skills. The guidance counselor is a link which assists the student in realizing how the skills he or she learns in your classroom relate to the world of work in the community.

The guidance counselor may also be involved in career placement, follow-up, and continuing education. It is possible that the guidance counselor will arrange for the handicapped learner to have a work study placement prior to graduation, to practice his or her vocational skills in the community. Perhaps the counselor has, in addition to discussing occupational skills, discussed options for further training, if necessary, after completing your course. In addition, leisure and recreational activities may have been discussed with the handicapped student so that he or she can lead a well-rounded and satisfying life. (Brolin and Gysbers, 1979, p. 260-261)

This is a brief description of the stages of career development and the potential role that the guidance counselor can play during each of these stages. Career development is a life-long process; at times, your special needs student could be involved in any one of these three stages of his or her personal or occupational growth. Below are the important points to consider when working with the guidance counselor:

1. He or she needs to have an understanding of what skills would be needed to learn in order to complete your class.
2. The guidance counselor is there to assist in your handicapped student's learning through personal or vocational counseling.
3. If additional resource personnel (e.g. interpreter or speech therapist) are needed to assist your special needs student, then the guidance counselor can assist in referring the student to these individuals for help.
4. The guidance counselor can help in finding community resources either for placement of the handicapped student or for career awareness activities in your classroom.

A summary of areas the guidance counselor will review with your handicapped learner, with his or her family or with you, are listed below. These competencies, categorized under daily living, personal-social, and occupational skills, can be a basis for sharing ideas between the guidance counselor and the vocational instructor for building a cooperative relationship.

1. Daily living skills.
    - managing family finances
    - caring for personal needs
    - buying and preparing food
    - buying and caring for clothing
    - getting around the community (mobility)
2. Personal-social skills
    - achieving self-awareness and confidence
    - maintaining good interpersonal skills
    - achieving independence and problem-solving skills
3. Occupational guidance and preparation
    - knowing and exploring occupational possibilities
    - selecting and planning occupational choices
    - exhibiting appropriate work habits and behaviors
    - obtaining a specific occupational skill
    - seeking, securing, and maintaining employment (Brolin and Gysbers, 1979, p. 260)

Additional Resource Staff

A number of other resource persons working in your school can work with you in planning and teaching a special needs student. Perhaps a psychologist could help your student with personal difficulties or adjustments he or she may be experiencing. A speech therapist could help your special needs student with speech and communication difficulties if necessary. Listed below are additional examples of resource persons who might be located at the school:

1. Tutor or Resource Consultant Teacher
    - Typically this teacher works with the student on an itinerant bases, as does a reading or math specialist. Their materials would directly supplement your instructional materials based on the needs you and your special needs students perceive as areas of difficulty. (Phelps and Lutz, 1977, p. 136)

2. Teacher aide or Instructional Technician

   - The role of the teacher's aide is to supplement formal instruction during class. This involves preparing handouts, visual aids or bulletin boards, and checking daily assignments if given. He or she could help maintain discipline and attention in the classroom, and provide individual assistance or tutoring needs to your handicapped learner. (Arkansas Department of Education, p. 19)

3. Adult Basic Education Teacher

   - This teacher would more specifically aid instructors on a post-secondary level. Adult basic education classes are typically held during the evening in community high schools. Students are adults who wish to improve in such subjects as math or English. Many classes are held for individuals wishing to complete high school by earning their G.E.D. If a special needs student needs additional academic work to supplement his or her training, notify your student's vocational rehabilitation counselor or the special needs department in your school. They should be able to assist in directing the student to the nearest program or school sponsoring adult basic education classes.

4. Coop and Placement Coordinator

   - The coop and placement coordinator assists a special needs student in finding an appropriate setting in the community to try out his or her abilities in a working environment. A coordinator can provide information about employment opportunities, work with the teacher and student to compile a profile of the student's knowledge and skills, and define specific objectives for placement with an employer. (Bowers, 1978, pp. 1-2)

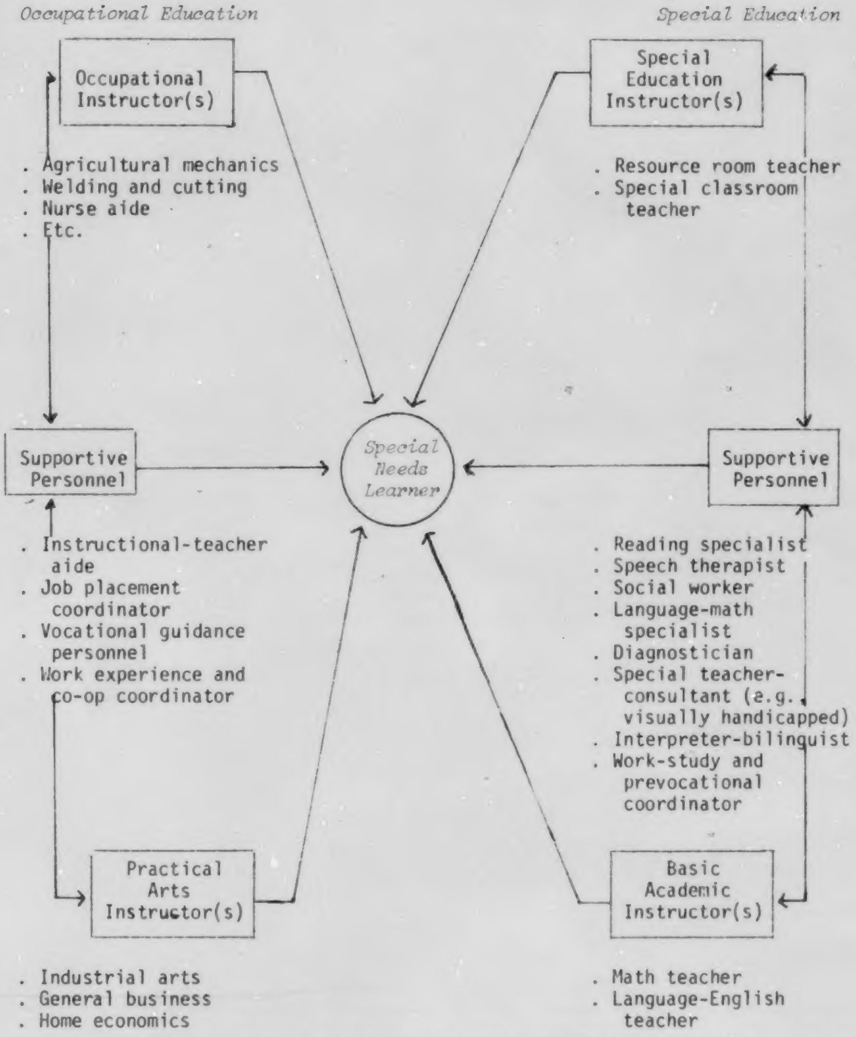
Figure One illustrates the various resources available in the school when educating a special needs student (Phelps and Lutz, 1977, p. 138).

IEP - Tying It All Together

The Individual Education Plan (IEP) is a tool established to better evaluate and plan for a special needs student under the "Education for All Handicapped Children" P.L. 94-142. The IEP specifically pertains to

Figure One

SCHOOL RESOURCES AND THE SPECIAL NEEDS STUDENT


Occupational Education
Special Education
Occupational Instructor(s)
. Agricultural mechanics
. Welding and cutting
. Nurse aide
. Etc.
Special Education Instructor(s)
. Resource room teacher
. Special classroom teacher
Supportive Personnel
Special Needs Learner
Supportive Personnel
. Instructional-teacher aide
. Job placement coordinator
. Vocational guidance personnel
. Work experience and co-op coordinator
. Reading specialist
. Speech therapist
. Social worker
. Language-math specialist
. Diagnostician
. Special teacher-consultant (e.g. visually handicapped)
. Interpreter-bilinguist
. Work-study and prevocational coordinator
Practical Arts Instructor(s)
Basic Academic Instructor(s)
. Industrial arts
. General business
. Home economics
. Math teacher
. Language-English teacher

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special needs students on a secondary level. On a post-secondary level, instructors may find this discussion helpful in providing information to aid in working with other professionals, perhaps during a conference with a vocational rehabilitation counselor or with a special needs coordinator concerning a new handicapped learner beginning your program.

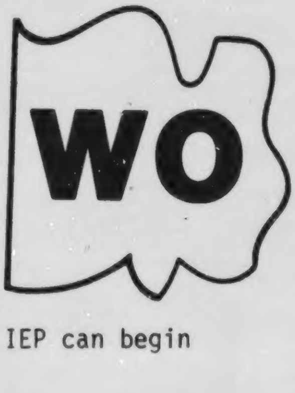
An IEP conference consists of three parts: background information, assessment information, and program planning.

The first part of the meeting is to review background information concerning the student. This discussion could focus on the student's handicapping condition. The second step is to examine and interpret the assessment done of the special needs student. Usually the assessments are valuable in assisting the staff, parents, and student, if appropriate, to determine the student's needs in the next school year and assess his or her growth during the past year.

The final area of discussion during this conference is program planning. There are three parts to this planning process: a narrative summary of the student's performance, a discussion of annual and short term objectives, and the identification of additional services needed.

The narrative summary of the student's performance in each subject area is done by the student's previous teacher. Based on all the information accumulated thus far, annual and short term goals are written. Participants in the conference can share ideas all through this process. This is especially helpful when determining the student's goals, and the most appropriate and effective means of educating the special needs student. These goals may include a short term goal such as "student will return assignments to school when they are due." The main purpose of this meeting is to clearly identify objectives of the handicapped learner's educational process.

The final step in the educational planning stage is to identify and list additional supportive services the special needs student may need throughout the school year. The conference concludes with the participants signing the IEP and indicating their satisfaction with it. (Goldfarb, 1978, pp. 3-5)



After reviewing the IEP conference, let's now consider a few points to illustrate how developing the IEP can begin establishing cooperative relationships with other resource persons. As a vocational educator, this meeting could prove to be the beginning of working with others. Professionals in the school and parents of the special needs students must meet together to discuss the student's educational plans. This may begin the groundwork for discussion on how supportive services could assist you in the classroom. During the IEP meeting, the following discussions could occur.

1. Understanding the student's handicapping condition.

    - During the meeting discuss the special needs student's strengths and weaknesses and review the student's record. It is at this time that questions concerning tests results or the handicapping condition can be answered.

2. Get all your hesitations out.

    - Specific concerns about accomodating the special needs student can be initially answered during this meeting. Because other in-school personnel will also be present, groundwork can be laid for establishing cooperative supportive services to assist you in the classroom.

3. Request special services.

    - After reviewing the special needs student's records and discussing strengths and weaknesses in light of the handicapping condition, discuss specific services needed. Identification of these needs will benefit the student's educational plan as well as for your own classroom planning.

4. Meet special education resource personnel.

    - During this meeting, the special education teacher can discuss his or her role in assisting the vocational teacher. It is important to explain, as much as possible what will be occurring in your classroom. This will enable the special education teacher to suggest teaching techniques, discipline, curriculum, and evaluation methods to use with the special needs students. It is likely you will be meeting regularly with the special education teacher to continue accomodating the special needs student in the classroom.

5. Meet parents.

   - The special needs student's parents may be an excellent resource. The IEP meeting provides a time to meet the parents and discuss ways they can help you develop an effective evaluation plan.

6. Talk over long range goals.

   - Discussion of long range goals facilitates cooperative relationships between different departments in the school. The special education teacher's knowledge of the student's potential combines with your knowledge of the vocational program to establish long range goals.

7. Help set complementary short term objectives.

   - All members of the IEP can provide essential support in this area. Objectives help to formulate the steps the special needs student will need to take to reach his or her long range objectives. Short term goals may include reading improvement, recognition of technical terms, or developing math skills. (Clark, 1979, pp. 283-284)

DEVELOPING INSTRUCTIONAL SUPPORT OUTSIDE OF SCHOOL

When viewing education as a lifelong learning process, your skills in developing support systems in your community provide an important link in your special needs student's learning. It is possible that your handicapped student has limited experience and knowledge of employability skills, potential career areas, and resources available in the community. Such knowledge of the working world is critical for your student as he or she is trained and begins thinking about employment. In this section we will review a few resources available in the community to provide your student with additional training or assistance in seeking and securing employment.

Parents

The parents of the special needs student can provide useful information about the student's strengths and needs. They should be encouraged to become active members of the team to support your student during his or her training program. Since parents are often the central and most important adults to your student, this support of your program can be invaluable.

There are several ways to establish a cooperative working relationship with the handicapped student's parents. One way of establishing contact is through the IEP meeting or perhaps through the student's first meeting before entering your training program. In such meetings the parents can provide important background information and can help to build a cooperative working relationship with you. Other parents will need additional encouragement and support from you before becoming more involved. It is important to remember that a joint effort assures a more complete and effective program for your student. (Foster, 1977, p. 389)

Parents may also become involved as resource speakers for career orientation programs, planners and/or chaperones for field trips, and special services, such as teacher aides or tutors. Through participating more fully in your training program, parents can become more aware of their son or daughter's capabilities. They also have an opportunity to observe him or her outside the home. (Foster, 1977, p. 394)

Parents can bridge the gap between school and the community by reinforcing the skills your student has learned in the classroom. If the student has a particular area of need, the parents could reinforce it in the home. This would enable your student to practice his or her skills outside of the classroom. Progress reports sent to the home or conferences provide a means of communicating with parents.

Vocational Rehabilitation Counselor

A student in your class may receive, or be eligible to receive, services from the local VR office. Vocational rehabilitation programs vary from state to state; however, most agencies will consider serving a student at the age of sixteen (Foster, 1977, p. 88). Under the regulations of the

Rehabilitation Act of 1973, VR services are primarily for the severely handicapped. Eligibility for services is determined on a case by case basis. However determination is based upon:

1. Presence of a physical or mental disability
2. Existence of a substantial handicap to employment
3. Reasonable expectation that vocational rehabilitation services will enable the individual to become employable. (Foster, 1977, p. 87)

The range of services which a VR counselor can provide, based on eligibility and financial criteria, are the following:

1. Vocational evaluation
2. Counseling for planning vocational goals
3. Vocational training in a school, workshop, or on the job, including training in a specific occupational skill, as well as personal and work adjustment
4. Job placement assistance
5. Follow-along guidance after employment is secured
6. Maintenance (room and board) while attending a school or facility for either evaluation or training purposes (provided on a financial need basis)
7. Transportation costs to and from the place of training or evaluation (provided on a financial need basis)
8. Physical restoration and vocational related medical services (provided on a financial need basis). (Beebe, 1978, p. 62).

How can you cooperate with a VR counselor if this agency is sponsoring your special needs student? The VR counselor can assist by counseling handicapped persons regarding their career goals. You could arrange a meeting to talk with the VR counselor to determine the most effective training program for your student. The vocational rehabilitation counselor could work with you as he or she develops the student's IWRP (Individual Written Rehabilitation Plan). Long and short term training goals, as well as services needed by the student, are developed in this plan. If the student needs special equipment or the services of other professionals (i.e., a physical therapist) in order to successfully complete training, the VR counselor could provide for these services.

The vocational rehabilitation counselor will work with you to insure that your special needs student is able to complete your class and move on to further training or secure employment. The VR counselor will assist in the placement of the special needs student by working with the student on job seeking skills and employment possibilities in your community. Through close communication with the counselor, a vocational instructor can play a key role in the student's future planning. The VR counselor will need to know the specific skills or knowledge the student has acquired. He or she also needs to know if the student requires further training or can seek employment after completing your class. If the student is seeking employment, such information as the kind of job or any equipment or environment modifications needed is essential for the counselor to know.

If you or the guidance department want information concerning eligibility of a special needs student, call the local Department of Vocational Rehabilitation and arrange an appointment. For a special needs student seeking to enter a post-secondary training program, parents, a special needs counselor, or the student can call the local DVR office for information.

Comprehensive Employment and Training Act (CETA)

In 1973, The Comprehensive Employment and Training Act was enacted by Congress. It is administered through the Department of Labor. This federal law was designed to develop employment opportunities through a variety of training programs. Its goal is to assist individuals who have substantial difficulty securing employment. Those identified to be served by this law are unemployed, underemployed, disadvantaged, and handicapped persons. Examples of the potential services which could be located in your area include:

1. Job counseling and testing
2. On-the-job training
3. Skill training
4. Job placement
5. Job development (with public and non public employers). (Beebe, 1978, p. 70)

The majority of CETA offices provide these services either directly through their staff or on a contract basis with other community agencies involved in vocational education, training and placement, and with community programs, such as Community Action Programs or Job Service (Beebe, 1978, p. 70).

By working with a VR counselor, guidance counselor, or a special needs coordinator, it is possible to find out about local programs funded through CETA. The mayor's office, other units of local government, or the telephone directory may list a CETA office. You could also call an office listed under Manpower Services. (Bertelson and Ganikos, 1979, p. 10)

Counselors from the local CETA office could serve as resource persons. School staff meetings or meetings in your classroom provide an opportunity to discuss services or programs available to special needs students. By coordinating with a CETA program, you can discuss potential on-the-job training positions for your special needs student or perhaps explore options for further training.

Employers

As a vocational instructor, you may work closely with an employer to assist in the placement of your special needs student. An employer may also work with you on career awareness activities in your classroom. Your relationship with an employer, may provide his or her initial contact with handicapped students as potential employees. You may play a key role in breaking down some of the employer's fears and attitudinal barriers.

Talking with Employers

A placement or guidance counselor may ask you to talk with a potential employer. The counselor may have initially contacted the employer regarding one of your special needs students. Perhaps a student has asked to use your name as a reference on his or her application. Or possibly you have contacted a friend of someone you know who hires the handicapped.

There may be several ways to establish contact with an employer, but the primary consideration is what to say to him or her when discussing your special needs student.

First, discuss with a potential employer the particular job for which the special needs student is applying. If you have planned an on site visit observe the specific job your student will do. You will then be able to explain your student's skills in relationship to the particular task. When discussing your special needs student with an employer, remember to emphasize the student's strengths. This does not mean to exaggerate, but help the employer realize the student's abilities by not concentrating on his or her disability. Point out ways in which the handicapped student adapted his or her work methods in order to finish a task. Keep in mind that the employer needs to be made aware of your special needs student's strengths or abilities.

When discussing a student's handicapping condition, use terms the employer will understand. How much information you should give to the employer needs to be discussed confidentially with the counselor and/or student prior to your talk with the employer. Based on your student's classroom and school performance, you can explain how your student would work on a day to day basis. Here are a few questions you might ask yourself concerning your special needs student's classroom or training behavior. These may help you consider the areas to discuss with your handicapped learner's potential employer.

1. Was my student on time to class regularly?
2. Did he or she do assignments independently? Was prompting needed occasionally to insure that the job was completed?
3. Were absences more or less frequent than other students?
4. Was the student able to learn a task quickly or were instructions needed more than one time before he or she could start the task?
5. Was the student able to retain material learned over the course of the semester? Or was it necessary to review previous instruction daily?
6. Does the student understand verbal or written instruction best?
7. Did the student seek help when he or she needed it or did the student wait until I asked?
8. Was the student able to keep up with the tasks or assignments given daily? Could he or she maintain the level of production needed for a job in this field?

9. Was the student able to get along with other students in the class?
10. How did the student react to criticisms or compliments about his or her work?
11. Did the student respect me as his or her "supervisor" in the classroom?
12. Was the student clean and neatly dressed when he or she arrived at class?
13. Was the student able to learn the technical vocabulary necessary for employment?
14. Is the student able to write clearly? Can the student sign his or her name?

When discussing your student's abilities with an employer, remember to discuss those aspects of the job which the special needs student can perform in order to get the job done. For example, a high reading level may not be necessary for a job, but it may be important to recognize key technical terms. If your student knows the terms, emphasize that strength.

It is possible that a special needs student can perform a job using special equipment. Or redesign of the task may enable the student to perform it. You have probably already done this in the classroom when the special needs student started your class. Ideas on what was done to restructure the job will be helpful to the potential employer. You can explain to the employer, for instance, how you enlarged handles on a machine so they could be more easily grasped or how you lowered a table or heightened a chair so that the handicapped learner could reach his or her tools more efficiently. If you present the modifications needed so that the employer understands what was done and how it helps produce more efficient work, the prospective employer could be more willing to consider hiring your handicapped learner.

You may wish to discuss a job redesign with the employer, emphasizing that the quality or quantity of the work does not necessarily change, just the way the task is completed. Job redesign involves these elements.

1. Reassigning duties so that the strengths of each worker are capitalized and the weakness minimized
2. Altering specific activities required so that the task is completed although done in a different way
3. Eliminating those steps which are not necessary to complete a task, thus saving time. (Hayes, 1977, p. 36)

By talking about your special needs student as an individual having dreams and goals like any other person, you will help the employer feel more comfortable in hiring a special needs student. It may also be helpful to point out that hiring the handicapped does not automatically increase the employer's insurance rates. These rates are determined by various standards and are not usually established on the type of employee hired (Foster, 1977, p. 367). The vocational instructor's role in assisting an employer in hiring a special needs person is important. By presenting your special needs student as a human being, as a real person who wants to work and make a life for himself or herself, will help the employer begin to think in terms of hiring a total individual, based on his or her abilities, not disabilities.

Career Awareness Activities With Employers

It is also possible to work with an employer through career awareness activities. Inviting an employer to speak to your class will help your students, and particularly your special needs students, become more aware of the various occupational opportunities in their community. They will also learn what is expected by an employer. Tours of a plant or business office will give students an opportunity to observe how jobs are done or how office procedures are established. Doing this also provides a good way for students to relate what they are learning in the classroom to occupations in the community. Such career awareness activities are also beneficial to you as an instructor. An employer can discuss changes in equipment or machinery which are vital to the skills training. He or she might advise you of job tasks that have been changed or redesigned for more efficient job performance. Keeping up to date in this manner will improve your students' knowledge and skill level, and enable them to compete for positions in the community.

Job Development With Employers

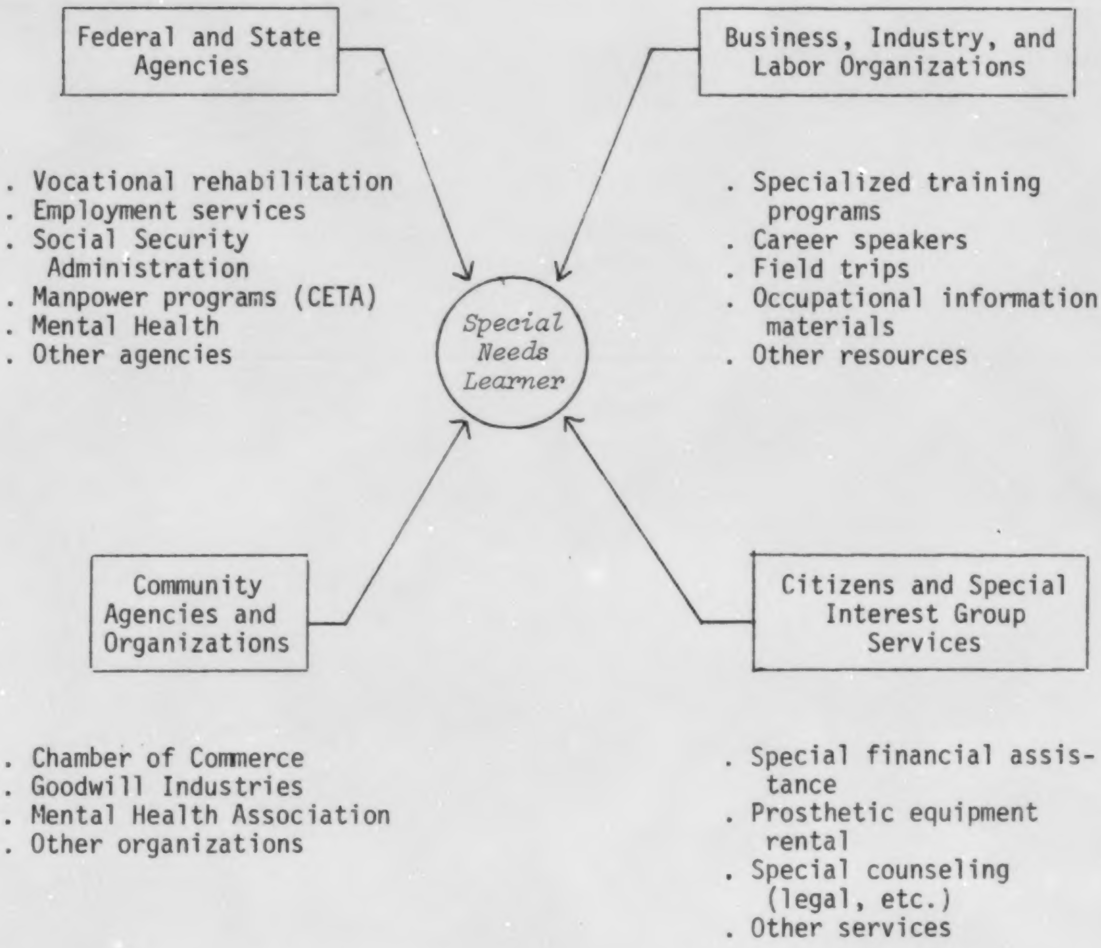
Through discussions on changes occurring in the field, career awareness talks in your classroom or tours of businesses by your class, the employer will become more aware of what the school or agency does to train special needs students. The employer will have an opportunity to see what special needs students can learn and how they can perform various tasks necessary for employment. The employer may develop a positive image and, perhaps, begin to break down barriers to hiring your special needs student in the future. The employer will be familiar with the school or agency and will have observed special needs students perform. This can be beneficial when a special needs student begins to apply for work. In addition, employers may be able to direct you to other employers in the community who could become more aware of your training program. An increased awareness between your school and the community can thus be developed.

SUMMARY

As can be seen there are a number of resource persons available throughout the school and community to assist you in teaching a handicapped learner. Figure 2 helps to illustrate the various resources available to assist in teaching a special needs student in the community (Phelps and Lutz, 1977, p. 139). These cooperative relationships will enhance the learning of all your students. Yet they also will especially benefit the students who might have had limited contact with employers, community organizations, or other school personnel.

Figure Two

COMMUNITY RESOURCES AND THE SPECIAL NEEDS LEARNER



Federal and State Agencies

- Vocational rehabilitation
- Employment services
- Social Security Administration
- Manpower programs (CETA)
- Mental Health
- Other agencies

Business, Industry, and Labor Organizations

- Specialized training programs
- Career speakers
- Field trips
- Occupational information materials
- Other resources

Community Agencies and Organizations

- Chamber of Commerce
- Goodwill Industries
- Mental Health Association
- Other organizations

Citizens and Special Interest Group Services

- Special financial assistance
- Prosthetic equipment rental
- Special counseling (legal, etc.)
- Other services

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CHAPTER III

Emotional Impairments of Learning

Carol B. Crowley

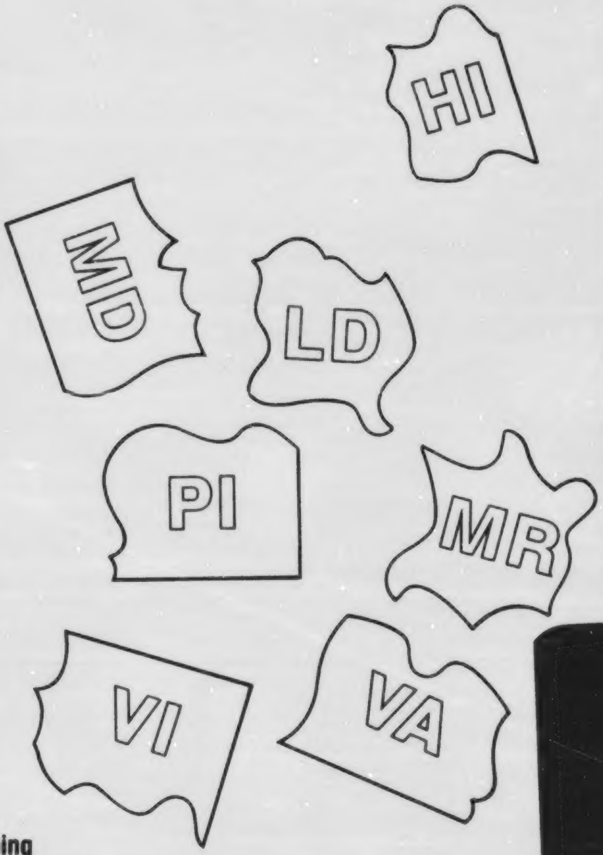

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Figure Two: Behavior Observation Record - Talking out of turn per hour of class

PART ONE

INDICATIONS OF EMOTIONAL IMPAIRMENTS OF LEARNING

DEFINING TERMS

The focus of this chapter is identifying and managing those student behaviors associated with emotional impairments of learning. This focus on specific behaviors, rather than on emotionally disturbed students, was chosen for four major reasons.

First, emotions are a basic component of learning for every student. Any student who is angry, anxious or depressed cannot learn as effectively as one who is not. If a teacher's goal is to facilitate learning, then dealing with students' emotions is an integral part of his or her job.

Second, not all students are emotionally disturbed - in fact, very few students receive this label. But any student, at one time or another, may suffer emotional problems that interfere with his or her learning. Shea (1978) states:

> Individuals perceived as "normal" have periods in their lifetime during which, under certain environmental conditions, they could be classified as "emotionally disturbed". It appears to be normal (not unusual) for human beings to have periods that are characterized by crisis, conflict, depression, and stress. At these times the individual manifests bizarre or socially unacceptable behaviors similar to the behaviors exhibited by persons classified as emotionally disturbed. (p. 4-5)

Any student may face developmental, situational or environmental difficulties which result in strong emotions. These responses interfere with his or her learning. A handicapping condition may impair the development of a student's positive self-concept. Teachers' or peers' negative reactions to a disability can also be a source of emotional difficulties for the student. In short, any student, not just one labeled emotionally disturbed, may have behavior and learning problems caused by his or her emotions.

Third, the behaviors of an emotionally disturbed student and those of a student with short-term emotional difficulties may be similar. Problem behaviors are evaluated regarding their frequency, intensity, duration, and type to determine whether referral for special evaluation is appropriate. Thus, student behaviors are legitimate teaching concerns, whether the student is labeled "normal" or "emotionally disturbed".

The fourth reason for this focus on behaviors, rather than categories, is a practical one. The major techniques which are effective in managing behavior problems in a classroom remain the same, whether the student involved is labeled handicapped or not.

To summarize, the focus of this chapter is not on the who, but on the what of emotional impairments of learning. The focus is not primarily on emotionally disturbed students, but on the behaviors which, if seen in any student, might indicate that his or her emotions are interfering with the ability to learn.

CLUES TO IDENTIFYING EMOTIONAL DIFFICULTIES

Teachers commonly have certain expectations for students' appearance, classroom behaviors, interpersonal behaviors and social skills, emotional stability, and language. For example, they may expect each student to be dressed neatly, to show good attendance and punctuality, to turn in assignments, to take notes during lecture, and to follow directions. They may also expect the student to be respectful to the teacher and friendly to other students, to have a positive attitude toward himself or herself, to avoid profanity or obscenity, to use appropriate volume while speaking, and so on.

Much of the time, teachers' expectations of students' behaviors are reasonable and realistic. In fact, a fairly happy individual who generally feels comfortable in his or her role as a teacher, may find such expectations to be valuable tools for identifying students with emotional problems. Emotionally troubled students are often disturbing to their teachers and to other students. When a teacher feels uneasy about a class member who seems too quiet and withdrawn, or too noisy and aggressive, the teacher may be sensing that the student deserves a closer look. Other signs of emotional problems may then become apparent and curricular modifications may be designed to help this student learn.

SOME SPECIFIC PROBLEM BEHAVIORS

When a teacher senses that a student may be experiencing emotional difficulties, he or she should observe the student carefully. Emotional problems can be seen in many combinations of behavior patterns. It may be helpful to think of behavioral problems as simply excesses or deficits of desired actions, related to the following categories:

1. Appearance
2. Academic behaviors
3. Interpersonal interactions
4. Intrapersonal patterns
5. Language styles

It is important to keep in mind that isolated behaviors may not indicate disturbance. Everyone shows inappropriate actions occasionally - often for such simple reasons as lack of sleep, a family argument, or a cold. Such transient problems may call for a sympathetic word, but do not indicate a need for prolonged concern. It is only when a student exhibits marked behavioral excesses or deficits over a long period of time, or when they significantly interfere with learning, that a teacher may need to offer some help.

EIL

Appearance

Appearance may be an indicator of possible emotional problems, and must be evaluated carefully. Age-related or cultural differences must not be mistaken for signs of emotional disturbance. Conforming to styles that are acceptable to the student's peer group indicates normality rather than abnormality. However, abrubt and noticeable changes in a learner's appearance may signal emotional problems. Changes may take the form of any of the following:

1. Increasingly unkempt appearance, such as a change toward wearing the same clothes day after day, a marked decrease in personal cleanliness, or carelessness about keeping buttons buttoned, zippers zipped, etc.
2. Sudden excessive neatness, preoccupied with washing hands, etc.
3. Startling and unusual make-up and hair styles
4. Excessively or unusually suggestive dress, make-up or mannerisms.

Academic Behaviors

Some possible signs of emotional problems may be found in a student's class behavior if he or she:

1. Lacks interest in class, evidenced by a refusal to work as directed, neglecting homework, or coming to class under the influence of drugs
2. Shows poor attendance, not connected with illness
3. Demonstrates habitual tardiness, not explained by such excuses as the distance between classrooms, meetings between class with friends, or physical handicap
4. Is distractable and lacks concentration, marked by excessive concern with other students' behaviors or frequent daydreaming
5. Is passive, failing to remember simple directions, or to bring books, pencils, paper, assignments, tools, or equipment to class
6. Shows a sudden sharp decline in performance or attitude toward class, grades, attendance, or enthusiasm.

Interpersonal Interactions

Possible signs of emotional distress may be shown in a student's pattern of interaction with others if he or she:

1. Withdraws from interaction in class, at break time, in small group situations, and in one-on-one encounters
2. Shows hostility or aggressiveness toward the teacher or other students through loud arguing, pushing matches, fighting, abusively contesting grades or rules, name-calling, showing an explosive temper

3. Makes inappropriate comments in class, interrupting discussion with irrelevant comments or jokes, distracting others
4. Is overly dependent on the teacher and needs approval for simple activities or stands too near, follows the teacher around the room or through the halls, asks irrelevant questions or makes comments mainly to get attention
5. Is unable to interact appropriately with other students, elicits their ridicule, starts many fights with other students, or seems unable to maintain friendships with any other students
6. Boasts or brags an unusual amount, seems dogmatic or overly competitive
7. Overreacts to constructive criticism, showing defensiveness or hostility, responding by accusing others of being "out to get" him or her
8. Displays annoying tics or mannerisms, such as humming, talking to himself or herself, unconsciously tapping pencils or feet.

Intrapersonal Patterns

Emotional disturbance may be indicated by the presence of the following intrapersonal patterns. The student may:

1. Deny the existence of problems, even when confronted with factual data, such as attendance records or failing grades
2. Blame others for problems, indicate helplessness to change situations, deny any responsibility for behavior or problems, and refuse to consider changing habits
3. Show signs of severe depression, demonstrating abject and painful sadness, generalized withdrawal of interest and inhibition of activity; a pervasive pessimism may manifest itself as severely diminished self-esteem and a gloomy evaluation of his or her present and future situation- particularly if these feelings persist over long periods without relief
4. Indicate feelings of persecution, believing that the school administration and/or many teachers hold a grudge against him or her in particular
5. Display a negative attitude about himself or herself, or his or her environment, family, teachers, and peers

6. Demonstrate severe anxiety, especially unrelated to particular events (such as tests), showing external signs which may include anything from trembling hands to total body agitation, with pacing, handwringing, or crying
7. Discuss grandiose, impossible plans, such as wanting to be a movie star, jet pilot and fire fighter simultaneously, especially when contradictory plans emerge almost daily.

Language Styles

Communication styles, like appearance, must be evaluated carefully. The habitual use of slang, profanity or obscenity may be disturbing to a teacher, but may not be indicative of emotional disturbance in a student. Care may be needed to draw a line between obscene or profane language used in the student's cultural and peer group, and that which indicates excessive hostility and possible emotional difficulties.

SOURCES OF EMOTIONAL IMPAIRMENTS OF LEARNING

It may be useful to conceptualize emotional disturbance as static on a radio. For some learners, there may be sporadic "static" which can prevent them from learning in certain kinds of situations or after disturbing events. Another kind of emotional problem can be thought of as contant low-level interference, like a radio station which is too weak to tune in without distortion. The signal is strong enough for the listener to tell which song is playing - but he or she cannot hear it clearly enough to enjoy the music. Or, rarely, there may be enormous, continual static which prevents the "listener" (student) from hearing any of the "program" (lesson). Frequently, the amount of interference experienced by a student is related to the source of his or her problem. Students may show emotional disturbances because they are:

EIL

1. Experiencing a crisis outside school

2. Reacting to the school situation itself, or to past failure in school
3. Suffering a chronic mild to moderate emotional illness.

There are many effective techniques for dealing with students' emotional problems. Some of these skills and strategies are appropriate, whatever the source of a student's difficulties. Others come under the heading of classroom management techniques, and are more specifically geared to the source of the student's emotional problems. Parts II and III discuss both general and specific skills and strategies for teaching vocational students who are emotionally disturbed.

A VISIT TO FOUR VOCATIONAL CLASSES

The semester is three weeks old. We will visit several imaginary vocational classrooms, observe students, and talk with teachers. We will see several situations in which emotional problems interfere with learning.

Gabe

The first classroom we visit is the student store, which serves as the Distributive Education lab. The teacher, Ms. B., greets us and begins to show us around when a student comes in late. Ms. B. excuses herself and hurries over to talk to the young man. We notice that he looks terrible. His clothes are rumpled and dirty. He looks pale, has dark circles under his eyes and seems exhausted.

When Ms. B. returns, she explains that this is the first time Gabe has come to school for more than two weeks. She is concerned because she had Gabe as a student last year and he was always dependable. During his absence, he had done no homework and had missed an important quiz. The school had received no word from Gabe or his parents explaining his absences. Ms. B. was afraid he had decided to quit school.

Gabe had just explained that his mother had been badly hurt in an automobile accident. He has been trying to keep the family going. His twin sisters are four years old and a brother is in fifth grade. He has been caring for and feeding the family, and visiting his mother in the hospital. Now his aunt has flown in from another state, and his father insists he return to school. His mother is still very ill and Gabe is worried about her. He is not sure whether he can function in school or not. As we are leaving, Ms. B. says she wishes there were something she could do to help.

Mike

Next we go the Refrigeration and Air Conditioning lab. Here we find a confusing array of refrigeration devices. There are many different types of units, from home refrigerators to commercial walk-in coolers. Students are working intently on various tasks. They work singly or in pairs, apparently self-directed. The teacher, Mr. G., explains that the course is individualized. Each student has an assignment sheet which he or she is working to finish.

Mr. G. discreetly points out Mike and explains that he seems to be having serious trouble learning. Mike is of average height and weight. He has blond hair and blue eyes. He is not noticeably different from other students, except that he is unshaved and his hair and clothes are sloppier than those of the other students.

Mr. G. tells us about Mike's rocky beginning in class. During the first three weeks, Mike seemed to feel threatened by the class situation. Several times, when he didn't know what to do, he climbed up on a work table and read Black Beauty or Hardy Boys mysteries. Mike's behavior and appearance keep him from fitting in. Mr. G. says he is not accepted and that he is always alone before class and during breaks.

During the first weeks of each semester, Mr. G. assigns chapters from the textbook and gives quizzes on the material. Mike seems to be anxious during these tests. He always shows white knuckles, bites his nails, and taps his fingers. He tries to finish the tests, but says he goes blank and cannot think. He has failed both of the first two quizzes. Mr. G. is afraid Mike will never be employable.

Carla

Moving down the hall, we come to the Business/Office classrooms. Here we find students typing or working with calculators. One young woman has the contents of her purse spread on the table in front of her. She is applying make-up and trying to talk to her neighbor. On his way to greet us, Mr. C. says, "Carla! Put that stuff away and get to work!" Carla shrugs and looks annoyed.

Carla is Mr. C.'s biggest problem. She is often late or absent. When she does come to class, she must be reminded to get to work every few minutes. Her work is full of errors and omissions. She constantly disturbs others. During lectures, Carla doodles and daydreams. In small group activities Carla contributes nothing. She forgets to bring her book, pencils, notepad or assignments. Mr. C. says, "I don't know why Carla even signed up for this class! She obviously has no interest in being here. All she seems to care about is her appearance and her boyfriend. I don't know what to do with her. She's taking time and attention I should be giving to the other students."

Sheri

The last class we visit is in the Home Economics suite. Ms. J. is teaching a class on child care. As she comes to greet us, a thin young woman with stringy brown hair and mismatched clothes follows her closely. We hear the student asking, "Who are those people? Why are they here, Ms. J.?"

EIL

Ms. J. says calmly, "They're just visiting our class for a few minutes, Sheri. Go back and finish your project." Sheri turns away, but watches us instead of working.

After we tour the class, Ms. J. takes us to her office. It is a cubicle with a large window in one corner of the room. Inside, we can talk privately while still observing the class. Ms. J. tells us that Sheri is a special education student who has been labeled "emotionally disturbed". She is mainstreamed three hours a day, in the child-care class and lab, and in gym. She spends the rest of the day in the resource room with the special education teacher.

Ms. J. explains that Sheri is doing fairly well in the class. However, she is too dependent on the teacher. She becomes frightened and upset by any change in the physical arrangement of the classroom or by any interruption of class routines. Ms. J. says, "She talks rapidly and follows me around the room. She asks question after question about the class, my home life, whether I know so-and-so. She asks about everything, but she doesn't seem to expect answers."

Sheri has also been known to have temper outbursts for no apparent reason, although none have occurred this year. She is not well accepted by the other students, though they do not tease her or treat her badly. They usually ignore her, but she does not seem to mind.

Ms. J. summarizes, "Sheri can do the work but it's difficult to get her to stay with anything long enough to finish it. She is so dependent on me that neither of us can get anything done."

During our tour we have seen some examples of students' emotions interfering with their learning. We will return to these classes in a few weeks to find out how these students are progressing, and what strategies the teachers have used to help them.

PART TWO

STRATEGIES TO HELP STUDENTS OVERCOME EMOTIONAL IMPAIRMENTS OF LEARNING

INTRODUCTION

The first step in helping a student with emotional problems is to understand his or her situation. Disturbing behaviors are the outward sign of inner turmoil. Fear, anxiety, anger, and depression are all painful emotions. Students who display maladaptive behaviors are usually suffering significant emotional pain. Feelings of not being loved or lovable and of not being worthwhile and respected are the basis of most transient, mild and moderate emotional problems (Glasser, 1965). There is increasing evidence that some very severe emotional disturbances, such as chronic psychosis, may be organically related. Persons suffering such extreme disabilities will rarely be seen in mainstream classrooms and, therefore, are not included in this discussion.

EIL

Whether a student's problems are mild or severe, transient or chronic, a vocational teacher may need to call on some general strategies or skills. Effective communication, problem solving, and behavior management techniques are useful in all kinds of problem situations. These will be discussed later in this section. The decision to employ these techniques depends on the teacher's beliefs about his or her professional responsibilities and functions. Therefore, the first and most fundamental strategy in dealing with emotionally disturbed students is for the teacher to come to terms with his or her own values, attitudes and expectations.

VALUES AND ATTITUDES

Some teachers feel that the goal of teaching is to dispense information. Whatever a student learns is the responsibility of that student.

Other teachers identify their goal as the communication of information and appropriate attitudes. They are concerned both with the messages they send and the student's ability to receive those messages. If one accepts that the goal of teaching is to help students learn, and that student's emotions may interfere with their learning, then dealing with students' emotional problems is an integral part of teaching.

A more difficult issue is one of degree of involvement. How much emotional support should a teacher extend? Where does one draw the line? When is a student referred to a counselor or therapist? Some teachers feel that students' in-class behaviors are their only legitimate concern. Others find that their relationships with students extend beyond the class, and that helping a learner may require involvement in his or her problems outside school. Whatever the extent of the involvement, it is essential that the teacher feel comfortable in the role chosen.

A special concern is that of teachers' values and attitudes regarding handicapped students and mainstreaming. Nondisabled teachers and students commonly react to handicapped persons with a mixture of emotions. They may feel guilty that they are not disabled, or they may be threatened by the reminder that a disabling accident could happen to them. They may feel embarrassed or uncomfortable when unsure how to communicate with a hearing impaired student, or how to help a blind one. Some nonhandicapped persons overreact to the disability and forget that the handicapped student is a person, above all. Perhaps the most common reaction is to avoid confronting uncomfortable emotions about the student's disability by avoiding the student himself.

Mainstreaming, the popular term for placing handicapped students in the most integrated learning environment possible, often causes negative emotions in teachers. Already faced with a demanding job, some teachers resent the addition of handicapped students to their classes. Others acknowledge the student's right to the most appropriate educational placement, but feel that a lack of information and support services damages the student's chances for a valuable learning experience. Most teachers do not allow negative reactions to mainstreaming to interfere with their relationships with students, but for some this requires a conscious effort.

The issues of values and attitudes are personal ones: each teacher must be responsible for his or her own beliefs. Clarification of one's values and attitudes is a necessary step in dealing with students' emotional difficulties.

EXPECTATIONS

Teachers' expectations for students may, as mentioned in Part One, serve as valuable clues to the presence of emotional difficulties. However, expectations can also be a source of problems. If a teacher is adamant that students behave only in certain ways, then everyone may become more involved with the rules than the content of the class. If a teacher's expectations are hidden until someone does not meet them, or if they are enforced one day and ignored the next, students may feel tricked. Trust between the teacher and class may be damaged.

A handicapped student sometimes represents a special case in a teacher's usual set of expectations. Some teachers seem to expect disabled students to perform exactly as everyone else does. Such teachers do not modify their programs, and the handicapped student may experience much frustration and failure. Other teachers seem to believe that a disabled student can never improve his or her academic or social skills, and little effort is expended to help the student learn. Students with physical impairments may be expected to watch or listen, but not to participate in classes. They may also be expected to show an almost saintly patience, never exhibiting anger or frustration with their disability or with the ostracism they sometimes feel from "normal" peers. Some teachers even seem to expect that if they never mention a student's disability to him or her, it will somehow disappear.

In summary, a teacher needs to become aware of his or her expectations for students' behavior. This gives the teacher a firm basis for helping students with learning or emotional difficulties. For example, a teacher may think, "I expect students to be on time for class. This is a reasonable expectation. Learning to meet it will help prepare students for employment after they leave school." Such statements, if honest, contribute to self-understanding and to objectivity in deciding which expectations are fair to students. They then form a basis for clear communication with all class members.

COMMUNICATION SKILLS

Along with his or her expectations, a teacher needs to communicate acceptance of a student and a willingness to help him or her succeed in class.

A teacher's emotional reaction to a student's behavior may cause the teacher to feel embarrassed to mention it ("He should know better!") or to feel hostile toward the student ("How could she!"). Such communication strategies are usually ineffective. Establishing two-way communication requires that both the teacher and the student talk and that both listen. Failure to mention a disturbing behavior pattern to the student neither aids mutual understanding nor helps to alleviate the problem. "Yelling" at the student usually (and understandably) elicits hostility, as well as passive or active aggression - another block to communication. It is sometimes helpful to remember that the force behind the learner's disruptive behavior is often great pain, and to realize that he or she:

- may never have learned more appropriate behaviors, either due to past experiences, or because of an inability to discriminate appropriate from inappropriate actions
- may not be aware of the behavior, either because his or her emotional turmoil is drowning out awareness of the present, or because the action is habitual or unconscious
- may be using the behavior as a defense against hostility he or she perceives (accurately or not) in the environment, or to cover up fears and vulnerability.

There are six general steps in communication. Each one may take a minute or an hour. They may take place in order, or they may become jumbled. Forcing an encounter to follow these steps is not appropriate. However, keeping these ideas in mind throughout a conversation will aid both teacher and student in understanding each other.

EIL

Privacy

In establishing two-way communication with a student, privacy is essential. It is difficult to talk or listen well where other students overhear or where other activities demand attention. When such time and place needs are met, it is usually a good idea to present an objective, data-based concern to the student. It may also be desirable to state the reason for concern. Since all behavior problems can be conceptualized as excesses or deficits of specific behaviors, it is possible to present objective statements about any student's behavior problem. Such statements could range from "John, I notice that you have missed class an average of two times a week for the last month," to "Lisa, I notice that you interrupted me several times while I was lecturing today." The teacher might then want to clarify the reason for concern. He or she could explain to John that he is falling behind in the work. Lisa needs to understand that her interruptions prevent other students from learning. The teacher should then indicate a willingness to work on the problem with the student.

At this first stage of communication, it is helpful to make a concrete, objective statement of the disturbing behavior in a calm, supportive tone. Introducing only one problem at a time enables the student to focus on the behavior rather than irrelevant material. Keeping statements class-related and objective makes it more difficult for the learner to deny the existence of a problem or to maintain that the teacher has a personal grudge against him or her. This focus on objective facts enables both teacher and student to remain aware that the behavior, not the teacher, is causing the student to suffer any negative consequences. It allows the teacher to remain supportive and nonjudgemental of the student as a person, while criticising some of his or her actions.

Listen for Response

In the second stage of communication, it is helpful to really listen to the student's response. Maintain good eye contact, refrain from grading papers or cleaning equipment. Keep hands and feet quiet and relax. These are all quiet signs of listening. Such encouraging noises or words as "uh huh," "Yes," and "Go on," are also signals to the student that the teacher is concentrating on understanding. Usually, an inner awareness that one is trying to do nothing other than understand what the student is saying is a guarantee that body language and unconscious vocalizations are communicating this effort successfully. Concentrating on trying to look or act like a good listener can interfere with being one.

Reflect

After listening to the student, the teacher should tell the student what he or she heard. This step is called "reflecting", and it is the simplest, most effective way to tell someone that he or she is understood and accepted as a person. Reflecting need not take more than a sentence or two. It can summarize the content and feelings implied in a communication, without repeating much of the original message. For example, a student is told of the teacher's concern about the student's absences. The student, in turn, spends several minutes explaining that his parents are getting a divorce. He must stay home with younger children. A reflecting statement might be something like, "Your family is having a hard time right now and you are needed to help out. This must be very upsetting for you." While this may seem like a useless repetition of known information, remember that although the teacher may have understood, the student may not feel understood. A reflecting statement shows understanding. It may be helpful to check the accuracy of one's understanding after making a reflection. This can be done simply by asking, "Is that about right?" A negative reply means the student should be asked to explain again. Or the teacher could summarize the ideas differently. This is not insulting to the student. It indicates even more strongly the teacher's interest in understanding. With an affirmative reply, the teacher can move on to the next stage of communication.

Invite Student Comments

Now is the time to ask the student whether he or she has any ideas about solving the problem. The teacher might say something like, "Do you have any ideas about solving this problem?" This step reinforces the idea that the learner is responsible for his or her behavior. It is often hard to listen to a student fumble through this process of finding this best solution, but telling the student what to do reduces the student's feelings of responsibility. It becomes "our problem" rather than the student's problem. Also, the teacher may unknowingly suggest something the student has already tried, which did not work. This can lead the student either to doubt the teacher's ability to help, or to see the problem as insoluble. If the student is told to do *X*, the teacher may be directing the student to do something he or she feels unable to do. The student may then conclude that the teacher does not really understand. Finally, if the teacher designs a solution *for* instead of *with* a student, the student may have a stake in making sure the idea is not successful. This is another way the student may think, "If your plan didn't work, it's your problem, not mine. It's your job, not mine, to think up a new plan." It is important to leave the responsibility where it belongs - with the student.

Listen for Ideas

Listen to the student's ideas for changing his or her behavior. If the student seems to ignore part of the cause of the problem, the teacher may ask what plans the student has for dealing with that aspect of the situation. If the student seems to be saying, "Well, I'll just do better from now on," it may be necessary to encourage him or her to be more specific. The teacher's role should be one of listening and helping the student think things through. The teacher may need to give information or suggest options, but is neither an adversary nor the decision-maker.

Clarify

After the teacher and student have discussed the student's responsibility for the problem and its solution, the teacher can clarify his or her position. It is important that both individuals leave the encounter with a clear understanding of the changes which are expected in the student's behavior, a time-frame in which these changes should be accomplished, and the actions the teacher will take as a result of the changes.

To summarize, communication with students should:

- be friendly, supportive, or helpful in tone - not hostile or accusatory
- be objective and data-based
- be limited to topics related to classroom behavior, unless the teacher chooses to function as a counselor
- invite student response and input, to which the teacher carefully listens
- not include the teacher's advice or recommendations for correction of the behavior problem
- conclude with a clear understanding of the changes, time-frame, and benefits which are expected.

EIL

PROBLEM SOLVING STRATEGIES

If a student's disturbing behaviors in class seem related to a specific problem, the teacher may want to help the student work through it systematically. Based on the communication skills discussed above, problem-solving strategies generally include the following five phases.

General Orientation

Help the student state the problem. Remind the student that problems are a normal part of life. One cannot give up, if one is to deal with problems effectively.

Problem Formulation

Help the student define the problem concretely and to classify the important issues, information, and goals. Many feelings may come out. They should be included, to the extent that they are relevant, in the problem definition. The teacher's experience can be helpful here. He or she may see aspects of the problem that the student cannot see. Identify these aspects, but leave the student in sole ownership of the problem. Ask such questions as, "I wonder if X is part of this?" or "Do you think Y contributes to the problem?" Encourage the student to write a succinct statement of his or her problem.

Generation of Alternatives

Encourage the student to think of as many ways as possible to solve the problem. At this point, do not restrict the student to reasonable or socially acceptable options. It may well have an undesirable impact if the teacher suggests that the student drop out of school as a solution to his or her truancy problem. But if the student suggests it, allow him or her to consider it along with other, better ideas.

Decision Making

Help the student consider the likely consequences of each of the alternative solutions. Encourage him or her to estimate personal and social, short-term and long-term outcomes. Remind the student that many problems have no single right answer, and that the best solution may be a combination of some of the alternatives. Remember not to choose a solution for the student, and be wary of making recommendations about which solution would be best.

Verification

Encourage the student to try out his or her solution to see whether it works. Try to help the student define success specifically enough to measure his or her progress. Encourage the student to give the plan a good try - some behavioral changes take practice to become effective. Suggest that the learner keep track of his or her progress in writing. Help the student understand that failure need not be devastating. If the initial plan does not work, he or she can return to Step 2 or 3, and try again.

CONTINGENCY MANAGEMENT

Principles of contingency management are used in most schools around the country where emotionally disturbed students are taught. Contingency management draws from the concepts of behavior modification. The theory of this approach is that all behaviors which are rewarded will increase in strength; those which are not reinforced or which are punished will decrease. The converse of these statements is also held to be true. That is, behaviors which increase are being rewarded; those which decrease are not. This part of the theory leads to an examination of classroom practices in a new light. In a classroom where only misbehavior receives attention from the teacher, misbehavior is likely to increase. Negative attention is more rewarding to some students than no attention. Such a reaction is likely to increase the intensity of the teacher's punishment, and a vicious cycle leading to decreased classroom control can sometimes result.

In using contingency management, teachers are responding to two central ideas. First, students' behavior is being modified in class, either in a planned or an unplanned fashion. Contingency management is an effort to examine the rewards and punishments which are in effect in a classroom, and then to control them so that desirable student behavior is increased. Second, contingency management is seen as a positive technique. Rewards have repeatedly been shown to be far more effective than punishment in changing behavior. In using this technique, teachers find that by focusing on positive student behaviors they create a more pleasant classroom atmosphere and become more effective as teachers. They find themselves with a more positive attitude toward students, their profession, and themselves.

Contingency management can be used as a general tool, to determine the overall degree of positive or negative student behaviors being generated by current classroom management practices. It can also be used with individual students in a program designed to improve specific behaviors.

The basic steps involved in using a contingency management process to improve an individual student's behavior are discussed below:

Identify a Behavior Change

Usually only one or two behaviors are targeted for change at any one time. If this is the teacher's first experience with this process, he or she should probably choose a relatively simple behavior for improvement.

Collect Base-Line Data

This step is important and is usually easier to do than it sounds. For some behaviors, such as attendance or punctuality problems, base-line data may already be present in a record book. Other behaviors, such as talking out of turn or leaving a work station, can be charted by simply making a checkmark on a scrap of paper each time it happens. These marks can then be counted and plotted on a graph after class. Deficit behaviors can be charted the same way. Base-line data might then indicate a number of days on which the desired action occurred infrequently or not at all.

Data collection is less easily quantified with such problems as "inappropriate social interaction". With these problems, data collection can be handled one of two ways. First, the identified behavior can be broken down into more concrete components. Count the number of times the component is observed, just as for the previous examples. Consider that "inappropriate social interaction" might mean that the student talks too loudly or follows another student around the lab instead of working. Either of these behaviors can be counted, once identified.

A second approach is to observe the student every few minutes during class and simply note "yes" or "no", depending on whether or not the student is performing the behavior in question. Two problems should be mentioned regarding this time/observation method of data collection. First, it may require more effort than the teacher can consistently afford to spend. It is one thing to make a quick checkmark every time the targeted behavior appears. Keeping track of time and noting a behavior set is a more demanding kind of data collection. The more important problem is whether the student will understand the base-line data when the teacher discusses it with him or her. If the student does not understand what "inappropriate social interaction" is, or know how to show "appropriate social interaction", he or she will be unable to improve. Even though the teacher can picture how he or she would like the student to act, telling the student to be "nicer" or "less obnoxious" is unlikely to help. Time/observation charting may be useful for such behaviors as "staying at a work station" or "reading", and an aide may be able to help with the charting, but it should be used with some caution.

Data that is collected should be plotted on a graph. It can be designed for whatever number of days and behaviors is appropriate. For a frequently-occurring behavior, base-line information may need to be collected for only a week or two. For a behavior that happens (or does not happen) once a day or less - such as class attendance - data should be collected for a longer period. See Figures One and Two below.

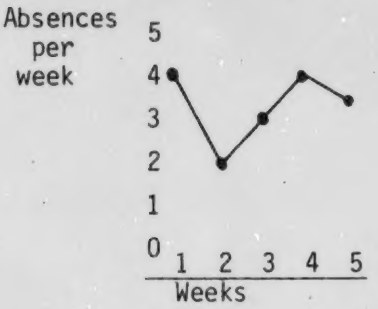

Figure One: Behavior Observation Record - Absences per week

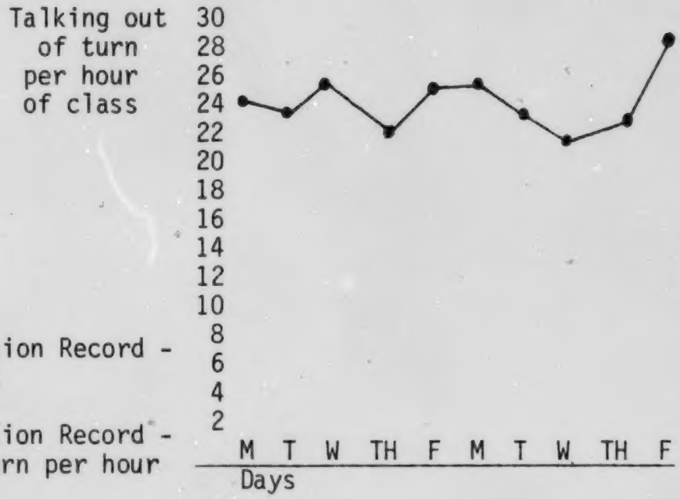

Figure Two: Behavior Observation Record - Talking out of turn per hour of class

Decide On a Course of Action

The first decision for the teacher to make is whether to work with the student alone or to get someone else to help. If the student is involved in special education or has an established relationship with a counselor or social worker, the teacher may want that third party to help establish a plan of action. In getting help, the first step could be to see this individual, show them the base-line data, and find out whether they are willing to cooperate.

Next, call a meeting with the student and the third party, if he or she is to be included. Use the communication skills outlined above to discuss the problem with the student. Show the findings, and ask the student for ideas on how the problem can be solved. It is important to focus on rewarding positive behaviors, not punishing negative ones. Reward attendance, do not punish absence. For excessive behaviors, reward incompatible actions. For example, if the student follows the teacher around the lab asking irrelevant questions, reward him or her for staying at a work station.

The student is the teacher's best advisor of effective rewards for him or her. A reward for one student may not reward another. It is important to discuss the problem, the solution, and the rewards carefully with the student. The power of contingency management lies in the desirability of the reward to the student, and in the feasibility of consistently providing it. Thus, the reward should not cost money or much time. Free time, use of school facilities or privileges, or notes to parents are all examples of rewards which may be powerful, yet relatively easy to supply.

Together, the teacher, student, and the third party should determine the rewards to be won at a defined level of behavior improvement. Also determine when the rewards will be given, and who will give them. Try to structure rewards so they do not reinforce negative behaviors. A reward for attendance, for example, should be given at the end of class or at the end of the day. Avoid setting up a situation where the student comes to school, gets the reward, and is then free to leave early.

Write an Agreement

Write down the results of the meeting in specific, concrete and complete terms. Be certain that expectations are clearly stated. If attendance at class is desired, write, "If John comes to class on time and stays for the whole period..." Tell the student if punctuality and remaining in class are part of improved attendance; do not expect the student to know these things.

Write down the contingency management plan in concrete terms. It might be desirable to design a system to tally the student's behavior change. The results might be sent to the third party to administer the reward, or the teacher may want to perform the entire operation. In either case, there should probably be a smaller reward for small improvements and a larger reward for more significant improvement. To continue with the attendance example, contract for a student to have free time during the last hour of each day he or she attends class promptly and completely. For every week of complete attendance, a note may go home to the student's parents, who might provide use of the car Saturday afternoon as a reward. Keep in mind that these are hypothetical examples -- the specific rewards would depend on 1) what the student considers rewarding, 2) what the teacher or others are willing and able to provide, and 3) what options are available in the situation.

The contract should also include a review date. This should allow enough time to see whether the contingencies are going to be effective, but not so much time that the student will be lost if the system does not work.

All parties to the contract should sign and date it, and copies should be given to each signer.

Put the Plan into Effect

If the program has been planned carefully, this should be fun. The teacher must be absolutely consistent for the plan to work. Continue to chart the student's behaviors carefully. The rewards should be given, or not given, according to the letter of the contract.

Attitude is most important. A major goal of contingency management is to help the student see the cause and effect relationship between his or her behavior and the results of his or her actions. The teacher is not giving or withholding rewards; the student is controlling the number of rewards he or she is receiving. The teacher is thus free to communicate respect for the student as a person, rather than act as judge and jury.

EIL

Evaluate the Success of the Contract

If the contract did not result in an improvement of the student's behavior, it will be necessary to decide whether or not to start over.

First, determine what went wrong. Some issues which may be considered are discussed below:

1. Were the rewards the student chose truly rewarding? Sometimes students have trouble choosing a reward they would really like to have, either because they cannot believe they could actually receive it, or because they worry that it would not be approved. If this is the problem, consult with others who are close to the student. Try to find out what might be of real value to the student. A list of suggested rewards may help the student identify one or two that would be meaningful. When appropriate rewards are established, a new contract can be negotiated.
2. Is there another behavior problem that is preventing the student from improving the contracted behavior? For example, is the attendance problem caused by the student staying out late at night? If so, a different contract may be needed.
3. Were the teacher and others consistent in charting behaviors and supplying rewards? Does the student feel cheated or let down? If so, design a charting system that is easier to manage. Systems can be designed for the student to chart his or her own behavior. All the teacher needs to do is validate it. The student could also feel let down if promised rewards prove too expensive, time-consuming or inconvenient to supply. Renegotiation of the contract may be in order. In addition, such problems may sometimes be caused by a third party, such as parent, teacher, counselor, who is unwilling or unable to supply the promised reinforcement. Again, it may be necessary to renegotiate the rewards, or to rewrite the contract without the involvement of the third party. Finally, a reward problem could be caused by a misunderstanding of the plan by the student, the teacher, or the third party. Talking it over may solve the problem, and the same contingency system can be tried again.
4. If none of the above questions or suggestions help, it may be that contingency management will not work for this student. It may then be necessary to refer the student to a counselor or therapist. Whether the student has an on-going relationship with a counselor, or is referred for the first time, tell the counselor about the contingency management experience.

If the contract has been successful -- that is, if the student's behavior has improved significantly -- terrific! If it seems that the student has improved, but the new behaviors are still somewhat tenuous, consider renewing the contract for a comparable period of time. If the student's new behaviors seem to have become completely self-rewarding, it may be desirable to dispense with the contract altogether. A third, and more likely option, is renegotiating the contract so the student must perform well for a longer time to earn a reward. Thus, the attendance contract might now require two weeks of perfect attendance to merit use of the car for a Saturday afternoon and evening.

In summary, contingency management is a powerful tool to help students overcome behavioral problems. It can help them learn to accept responsibility for and control over their actions. It is a positive technique which rewards behavior improvement, rather than a punitive system. It places the teacher in the role of friend and supporter, rather than judge. It allows the student to focus on one behavior problem and to build self-confidence as he or she gains control over this behavior. This self-control and self-confidence enables the student to face other behavior problems - and perhaps negotiate successive contracts - with pride and determination.

PART THREE

PROGRAM EXAMPLES

INTRODUCTION

Using the basic techniques discussed in Section II, a teacher can manage most of the behavioral problems which crop up in his or her classes. The combination of strategies which will be most effective will depend on the type of problem a student has and the source of his or her emotional difficulties. Specific suggestions for major types of problems are discussed below. In addition, special issues of handling an aggressive student and guidelines for referral are included. A summary of the chapter is provided by a follow-up visit to the four imaginary vocational classes discussed in Section I.

CLASSROOM STRATEGIES

Depending on the nature of the problem, the specific strategies which are used to help a student who is experiencing emotional impairments of learning will differ.

Three major sources of emotional problems were mentioned on pages 6 and 7. These were:

- a crisis outside of school
- reaction to a current school situation, or to previous failure in school
- chronic emotional problems.

Students in Crisis

Students' emotional difficulties are sometimes short-term and may be caused by crises outside of class. A death in the family, a brother or sister in trouble with the law, or other serious personal upheaval may render the student unable to concentrate on classwork. Understanding and support can make an enormous difference in helping a student continue in a program at this time.

Talking with the student may provide the help he or she needs. Allowing the student to miss a class or turn in late assignments can be crucial to helping the student stay in school. The teacher might also agree that the student may make up lab work or be given other support during the crisis period. Whatever the nature of such an agreement, it needs to be clearly understood by both teacher and student. It should probably include a time limit. If the crisis is serious and long-term, it may be appropriate to recommend that the student talk with a counselor.

Reactions to School Situations

Students who are otherwise happy and well-adjusted may show emotional problems in school, or in a particular class, because they are reacting to a stressful school situation. A learner with many friends, a part-time job or other active interests, may seem to "turn off" in class, for example. Two types of school-reaction problems are fear of failure and lack of motivation. Classroom techniques for aiding students with these problems are discussed below.

A number of factors can cause students to become so anxious in school that learning is blocked. Pressure from parents, fear of ridicule, low self-esteem, or past failure can make students "freeze-up" in the classroom. Test anxiety is such a phenomenon. Students with this problem have great difficulty showing their knowledge because the testing situation itself produces so much emotional "static" that they cannot perform efficiently.

Handicapped students are especially prone to having emotional problems in certain school situations. Learning disabled and mentally retarded students may have suffered so many years of failure, humiliation, and ridicule that any classroom becomes threatening to them. Sometimes failure becomes so familiar that it is frightening to experience success. These students may have developed defenses which are activated in class, whether or not they are needed.

EIL

Aggressiveness, passive refusal to attempt work, joking and acting out may all be efforts to forestall disappointment at another failure. Physically handicapped students may be embarrassed at their ineptness, afraid of physical dangers or obstacles, or uncomfortable about being different from other learners.

There are several kinds of actions which help these students learn. Getting to know the individual and establishing rapport is important. The student will feel less alienated and less threatened in a class where he or she is welcome and wanted. Lessons in which success can be achieved in a series of small steps, especially at the beginning of the semester, help the student gain confidence. A measure of privacy when the student attempts a new task can ease his or her embarrassment at any awkwardness or ineptness. Allow the student opportunities to correct mistakes and thus ease the pressure he or she feels. Help the student not to overreact to failure and praise him or her for continuing to try. These supports build confidence. If efforts to make the student feel welcome and comfortable in class do not help the student relax and concentrate, it may be necessary to refer him or her to a counselor.

According to the Value/Expectancy theory (Filley, House, and Kerr, 1976), there are two major elements of motivation. First, the student must positively value the outcomes of the activity. Secondly, the student must feel that his or her efforts will, in fact, affect these outcomes. A motivated student must either want to learn to be skilled in a career area, or must value good grades. In addition, the student must be convinced that his or her efforts will result in achieving the desired objective.

A student may show a negative emotional reaction to a particular vocational class because the occupational objective of the program does not match his or her career interests. Perhaps the student enrolled in the class at the insistence of parents, as a result of peer pressure, or because he or she was not exposed to enough career options to make an informed choice.

Another student may be interested in a vocational program but still lack motivation. The student may be convinced that his or her efforts will not affect his or her success or failure in the class. The "why try?" attitude of such a student impairs learning.

The first kind of motivation problem situation may be improved by career counseling. Students who are in the wrong program should be guided through a systematic course of career development, preferably with an understanding counselor. Students who feel their efforts will be useless may be aided by any technique which actively involves the student, encourages the student to have confidence in his or her capacity to succeed, and enhances the student's skills.

Chronic Emotional Problems

Students who have been labeled "emotionally disturbed" through psychological testing and are mainstreamed from a special education program may bring special problems to a vocational classroom. It is a good idea to consult with the student's parents, special education teacher, or counselor to determine whether any particular teaching techniques especially help or hinder learning.

Know the student's career goals, and why he or she is enrolled in the course. The teacher, the student, and other appropriate individuals may want to identify course objectives which would meet the student's needs. A student who needs employment as soon as possible may want to learn a few skills, rather than master the entire program. A student who is upset by encounters with the public might pursue a maintenance program rather than a repair service career. In other words, it may be important for this student to master some, but not all, of the objectives of a course or program area. This decision should be reached through agreement of the student, his or her parents, special education personnel, the counselor, and the vocational educator. Upon leaving the course, a student who has completed only part of his or her objectives could receive a written list of acquired skills, rather than a certificate which implies mastery of the entire course or program.

Once all parties have agreed that the student is to be in a class, and determined the skills he or she wants to learn, it is important to be consistent. The room should look the same every day, if possible. Class schedules should be as routine as the teacher can make them. It may be difficult for this student to cope with the rearrangement of furniture, haphazard break times, or unexpected interruptions or visitors.

The teacher's attitude and behavior toward the student should also be as consistent as possible. If the learner knows what to expect from the environment and from the teacher when he or she enters class, the student will find it easier to concentrate on the work.

As much as possible, ignore disturbing behaviors shown by this student. Where necessary, calmly and clearly tell the student what behavior you expect. For example, if he or she is talking during a movie, cue the correct behavior by saying something like, "It's time to listen now, Pat." This kind of cueing may be needed several times during a class.

Contingency management is generally the most effective technique for improving the behavior of such a student, but contracts should be limited to the one or two behaviors at any one time. Other behaviors need not be discussed at length. Quiet, unemotional statements to cue the appropriate action are usually sufficient.

The teacher's support is especially important to the student with chronic emotional difficulties. Reward good work. Praise improvements in behavior. Model the calm, consistent manner the student should achieve. Forewarn him or her of potentially upsetting plans - changes in the schedule or environment, upcoming tests or quizzes, and so on.

Cooperation with the special education teacher or counselor can help reinforce learning, manage behavioral contracts, and teach appropriate classroom behaviors. Include these individuals in plans and enlist their help as much as possible. If a crisis such as a fight should occur, remove the student from the class quickly and calmly. An administrator, counselor, or special education teacher can be called on to help with this student or to stay with the class. After everyone is calm, when the student returns to class, try to follow usual routines and behaviors as closely as possible.

EIL

Vocational education has a great deal to offer a student with chronic emotional difficulties. The individualized hands-on nature of much of vocational instruction can be therapeutic for such learners. A sense of confidence gained from mastering a new skill can be very rewarding. One teacher helped a vocational student increase his general frustration tolerance by demonstrating repeatedly that failure to complete a task perfectly was not important, but that trying again was. The teacher praised the student's growth in this area as it related to his vocational perfomance, and helped him to apply this tolerance to other areas of life.

SPECIAL PROBLEMS

Two issues are particularly important for teachers to handle well. These are reacting to a student who becomes violent or abusive in class and referring a student for counseling or evaluation.

Aggression

Shea (1978) defines physical aggression as "hostile physical action against self or others to harm or cause fear" (p. 45). Jurgens and Babich (1978) state:

> Aggressive students have observable and recognizable characteristics. Overt aggression is particularly observable in the classroom where the student seeks approval. If this approval doesn't come, the student seeks attention by being vocally defiant, fighting with little provocation, lying..., cheating, stealing, destroying property, being truant and, in general, defying all authority. (p. 2)

Overt aggression may result if the student has experienced a history of failure, rejection, and unhappiness. Sometimes the student is testing a teacher to see whether he or she will reject the student as others have. Aggression may also be used to hide a student's deep sense of insecurity, inadequacy, and powerlessness.

In managing a classroom situation where a student becomes physically aggressive or destructive, it is a good idea for the teacher to:

1. Remain calm, modeling the controlled behavior which is desired
2. Intervene by separating the individuals involved in the conflict and getting them started on another activity, or having them take a time-out in separate corners of the room

3. If necessary, send an uninvolved student to the office to get help, either in talking to the students or in managing the class while the teacher talks to them
4. Return to normal classroom procedure as quickly as possible.

Shea (1978) states, "Punishment and deprivation of priviledges are frequently effective in reducing aggressive behaviors. Physical punishment should be avoided...The modification of unacceptable behaviors is always accompanied by the consistent reinforcement of acceptable behaviors," (p. 45).

Follow-up measures to an outbreak of aggression in a classroom include the following suggestions:

1. Remind anyone (parents, teachers, others) who work with an aggressive student that such behaviors "often produce anger in the adults who work with them. Since these feelings are expected and normal, it is important not to feel guilty about them, and it is also important not to let these feelings influence the way one handles the aggressive child". (Blanco, 1972, p. 32)
2. Have a conference that includes the student(s), parents, teacher, counselor, principal, and other interested parties. Make clear to the student that aggressive behavior cannot be tolerated. Outline the terms of any punishment and behavioral expectations for further class participation. Be sure all parties understand present and future consequences of aggressive behavior. Make a start on a system to reward positive behaviors which are incompatible with aggression.

Referral

A student should be referred for special education evaluation, counseling, or therapy when his or her behavior seems out of control. The following factors should be considered:

1. Frequency
    - If a particular behavior is seen much more often or much less often in one student than in his or her classmates, the student should be referred for evaluation or counseling.

2. Intensity

   - A student may need counseling if his or her emotional reactions to a situation seem much too intense or much too flat, compared to those of other students of a similar age in a similar situation.

3. Duration

   - Behaviors that persist when it is not appropriate for them to do so should be noted. If a student has habits or mannerisms which are appropriate for a much younger child, or if a new behavior is extremely overused, the student may need psychological evaluation.

4. Type

   - Immediate intervention is needed for certain types of behaviors. "Among these behaviors are intense physical abuse of self and others; severe, unexplained, and unpredictable withdrawal; and attempted suicide", (Shea, 1978, p. 42)

When referring a student for counseling or evaluation, the specialist will need to know precisely what behavior(s) seem to the teacher to be inappropriate. Specific information, including the following, will be helpful:

- when the behavior occurs
- what seems to cue it
- where it occurs
- exactly what the student does
- how often the student does it
- what emotional reactions the student seems to feel
- what reward or punishment follows the behavior
- what the teacher has done to try to change the behavior
- how these efforts have affected the behavior
- who else has been involved in efforts to change the behavior (parents, other teachers, etc.)
- how others involved have reacted to the success or failure of these efforts

- how the behavior affects the student's classwork
- a prognosis for the student's success in class if the behavior continues
- what the teacher would like to learn from the evaluator or counselor about the student
- whether the teacher is willing to work with the specialist in further efforts to improve the student's classwork and behavior.

If the counselor or evaluator agrees to see the student, it is usually a good idea for the teacher to prepare the student for the meeting. The teacher should explain to the student who the specialist is, where and when the meeting will take place, what is likely to happen during the meeting, and what behavior problems are of concern. If the student has never met the specialist, it may be helpful for the teacher to arrange an initial meeting and accompany the student to it.

A FOLLOW-UP VISIT TO FOUR VOCATIONAL CLASSES

It has been eight weeks since our last tour of the vocational school. As we visit the same four imaginary classrooms, we can find out what has happened to the students we saw earlier.

Gabe

In the Distributive Education lab, we meet Ms. B. again. Gabe is in one corner of the room, preparing a poster to advertise a sale on greeting cards. Ms. B. reports that Gabe's mother is much better, and that Gabe has been back in school full-time for about six weeks. He missed most of his classes for about four weeks, and is still working hard to make up the lessons he missed. Ms. B. says that after she learned the reason for Gabe's absence, she scheduled a conference with him. She expressed sympathy and assured him that he need not worry about D.E. until he was under less pressure at home. She encouraged him to stay in school, and promised to help him catch up when he came back. She also suggested that he talk to each of his other teachers and to the principal to explain the situation.

When Gabe returned, he and Ms. B. sat down together and planned an extra half hour of lab work during lunch for the rest of the semester. This time allowed him to make up the experiences he had missed. Since the class work was individualized, Gabe could pick up where he'd left off. By taking home learning packets, he had almost caught up already. Ms. B. says Gabe has had to drop one of his courses, but that the principal had assigned him to a study hall for that period. During this time, Gabe works to catch up in his two remaining, nonvocational courses.

As we are leaving, Ms. B. says, "You know, the most satisfying thing about this is that Gabe told me that he would have dropped out if it hadn't been for my support. What a nice thing for a teacher to hear!"

Mike

Moving down the hall, we enter the Refrigeration and Air Conditioning lab to find out how Mr. G. is doing with Mike, the student who seemed so anxious during the first weeks of class. Mr. G. greets us, but as we glance around the lab, we do not spot Mike. Mr. G. laughs and quietly points him out. He no longer looks different from the other boys. He is partially hidden in a group with three other students and is involved in dismantling an old freezer.

Mr. G. tells us that Mike has gradually improved. He has learned to like and trust Mr. G. As he has become more familiar with the lab equipment, machinery, and procedures, he has learned to work on a task throughout the class. Once he began to feel less anxious, his test grades started to improve. One test was on a movie that class members were allowed to view as many times as they needed. Mike scored an A.

Recently, Mr. G. has arranged for Mike to spend time in the developmental reading center, as well as having another class member, Erik, tutor him. This has helped Mike learn the material he was too anxious to concentrate on during the first weeks of class. Mr. G. has also promised Mike that he can retake those first quizzes to try to improve his grade average. Mr. G. feels hopeful that Mike can soon complete the course and obtain a co-op placement. He feels Mike might be better off in a maintenance job than in an appliance repair position, since coping with new situations may always be difficult for this student. Mike is eager to have a career in the refrigeration field, and Mr. G. suspects that Mike's future employer may have the most carefully maintained equipment in the county.

Carla

In the Business/Office classroom, we see Mr. C., but not Carla. Not wanting to be surprised again, we look carefully - still no Carla. Mr. C. explains that Carla is no longer in his class. He tells us that in talking to her, he learned that she signed up for the class because her mother wanted her to be a secretary. She said she was more interested in fashion, but did not want to disappoint her parents. Mr. C. referred her to a counselor. After meeting with Carla several times, the counselor arranged a conference for Carla, her parents, Mr. C., and the Fashion Merchandising instructor.

EIL

When her parents understood the nature of the fashion course and the extent of Carla's interest in it, as well as the extent of her disinterest in secretarial skills, they agreed to let her transfer into the Fashion Merchandising course. Mr. C. says her new teacher reports that Carla is working well. She had to work fast the first few weeks to catch up, but seemed willing to do all that was required. Her interest is still high, and she is rapidly acquiring the skills she will need to succeed in her chosen career.

Sheri

Our last visit is to the Home Economics suite to see Ms. J. and Sheri. Sheri looks up from her work, but does not leave her seat as we come in. Ms. J. gives her a nod and a smile as she notices Sheri's improved behavior. Sheri's attention then turns back to her work.

Ms. J. tells us that she, Sheri, and Sheri's special education teacher have agreed on a contract which was helping Sheri learn to remain on task. She says that whenever Sheri attends to her work for 15 minutes without leaving her desk, she earns one point. Seven points is considered a perfect score for a two-hour lab, and Sheri has been earning six or seven points every day for three weeks now. Sheri has a graduated scale of rewards for the points she earns, and Ms. J. sends a note to the special education teacher each day to tell him how many points Sheri earned.

Ms. J. adds, "Sheri needs a little extra attention, but she seems to be working well in here. I have to remind her not to talk to herself while she works, and I need to be careful to warn her when something unusual is planned for class. Other than that, Sheri's really no more difficult to work with than any of my other students".

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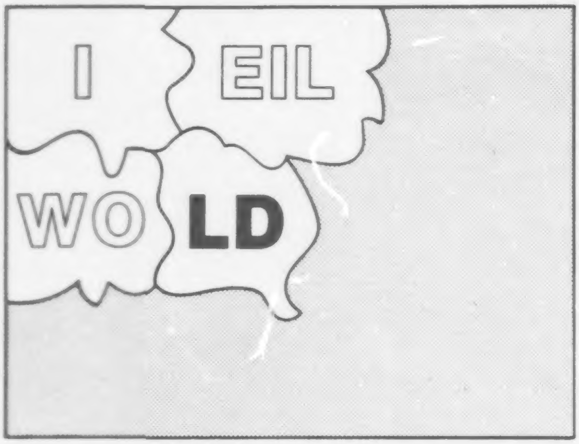
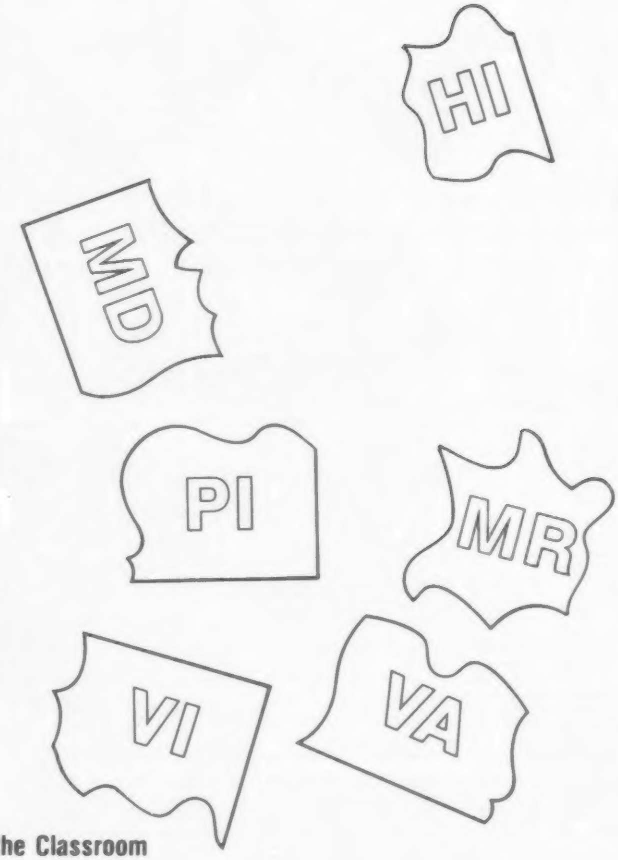
CHAPTER IV



Learning Disabilities

Lloyd W. Tindall



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PART ONE

RECOGNIZING LEARNING DISABLED STUDENTS

INTRODUCTION

Vocational teachers with little knowledge of learning disabilities are being asked to recognize and teach learning disabled students in the shop and classroom. Vocational teachers at the secondary level may have been told of learning disabled students in their classes by persons involved in developing the student's Individualized Education Program. Postsecondary vocational teachers may be completely unaware that learning disabled students are enrolled in their classes.

The purpose of this chapter is to help vocational and other teachers become familiar with learning disabilities and how to compensate for the disability. The chapter is divided into three parts. Part One gives an insight into the characteristics of learning disabled students. Part Two provides examples to demonstrate how to compensate for the disability. Part Three provides examples of schools and teachers who have successfully mainstreamed learning disabled students into regular secondary and postsecondary vocational programs.

Providing services to learning disabled students is a larger task than can be assumed by individual teachers. This task should be shared by the learning disabilities specialist, guidance counselors, school psychologist, academic teachers and support personnel at school and in the community. A cooperative approach to teaching learning disabled students will enable them to participate in vocational education classes and obtain employable skills.

A VISIT TO THE VOCATIONAL SHOP AND CLASSROOM

To get an idea of what to expect from learning disabled students, we will tour a few vocational classrooms and shops to see if we can recognize learning disabled students.

As we enter the 11th grade auto mechanics shop, we see it is a bee hive of activity. One student is dismantling and cleaning a carburetor. Another is installing piston rings on a late model V/8 engine. Two other students are removing a radiator to repair a leak. As we watch, we observe that one student seems to be moving from place to place and trying to help other students. But the student is not staying in one place long enough to be of any real help. We ask the instructor what the student is working on. He replies that Joe is assigned to replace the brake linings on the car in the far corner. According to the instructor, Joe is always hyperactive and lacks the ability to stick with or concentrate on his shop assignment. His instructor observes that Joe is very good at replacing brake linings if he stays with the task. The instructor also wonders why Joe can do so well in brake work and do so poorly in setting the timing on an automobile engine. His daily work seems to be a series of high and low performances.

As we talk to the instructor, the auto mechanics students put away their tools and equipment. They go to the classroom where the instructor will give them a lesson on setting emission controls. An assortment of carburetors, exhaust control valves and air pumps are on the table at the front of the classroom. The instructor asks for a volunteer to make the proper adjustments as he talks. He tells Joe to pick up the valve on the left. Joe hesitates and picks the middle valve. The instructor says, "No, pick up the valve on the left." Joe picks up the valve on the right. Our observation is that Joe does not know his left from his right. A talk with the instructor after class confirms that Joe has trouble discriminating right and left...

We are in a vocational agriculture classroom in late March as the instructor explains the tasks the students need to accomplish to prepare a cornplanter for spring planting. A cornplanter from one of the student's farms is in the shop awaiting preparation.

The instructor asks the class to read a section of the cornplanter manual silently. Tom reads for about a minute and then starts bothering the student next to him. After being asked to continue reading, Tom reads for another 30 seconds and again bothers his neighboring classmates. The instructor asks the students to list the necessary tasks on paper. Tom has trouble listing the essential tasks. He cannot identify the essential tasks to be performed. His thinking appears to be disorganized.

His handwriting is poor. Some of his letters are reversed: a "b" replaces a "d". He has skipped words. We also observe that Tom is easily distracted by noises outside the classroom. He does not seem to have the ability to tune out even minor distractions.

When dismissed to go to the shop to perform the tasks, Tom appears to be clumsy and awkward. He exhibits poor coordination, especially for a student in the 12th grade. After arriving in shop, Tom cannot remember his task. He is to grease all the zerks on the cornplanter. He does not remember where the grease gun is located or how to fill the grease gun...

Next we stop at a home economics classroom where the instructor is explaining the essentials of clothing design. Harry seems inattentive and does not pay attention to the instructor. At times he appears to be daydreaming. A few minutes later he appears revived and is an apt listener. Apparently Harry cannot sustain attention over a period of time.

We talk with Harry after class and ask him if he remembers the major points the instructor made. He says that he cannot remember all the things listed on the board. He is quick to add that his memory is really good, especially in remembering things in which he is interested.

Harry tells us that he cannot remember what the teacher said. But when they actually practiced clothing design and made a new garment, he was one of the best in the class. Harry's instructor agrees that Harry does much better work when involved in a hands-on situation. The teacher also notes that Harry often does not notice a specific step. He simply overlooks it, even though he is capable of performing the step...

Later the same day we stop by a business typing class at the local vocational school. We observe Mike is having problems in the business typing course. The vocational school has an open door policy and Mike was permitted to enroll in the course. His teacher did not know anything about Mike's past school record and no records on Mike were available at the office.

The teacher shows us some of Mike's work. It is obvious that Mike has difficulty in organizing his typing assignment. The material is not lined up properly on the sheet of paper. He has difficulty in spacing paragraph indentations and margins. When the teacher asks Mike, in a written test, to list the important steps in typing a business letter, he gives details which are not relevant. He also has difficulty in selecting the main points.

We ask Mike what helps him to learn best. He says that he understands the assignment best when the teacher explains it to the class, or to him individually. He cannot understand the written assignment. He has enrolled in the class hoping to get a job typing...

The last stop is to a beginning welding class. Mary is having trouble with the reading assignments. She also appears not to be able to correct herself or care about her mispronounced words. Sometimes she speaks too loud. She does not try to correct her spelling. She does not seem to be aware of her inappropriate performance.

Her instructor has given up trying to work with Mary in the classroom where written work is required and where reading assignments are frequent. As an alternative, he gives Mary individual instruction in the welding shop. He hopes to teach her the basics in spite of the reading situation. However, problems still exist. Mary cannot see the relationship of the angle to which the electrode must be held, the arc length or the forward speed of the electrode. She does not seem to know when the amperage setting is too high or too low. Mary is too willing to accept poor quality work. She will be dropped from the course at the end of the semester...

Upon our return from the vocational classrooms we realize that the students observed in the classroom and laboratory were exhibiting learning disability characteristics.

Although many other learning disability characteristics may occur, these students exhibited some of the most common traits. To review, these were the major characteristics observed:

1. Poor ability to sustain attention to the work to be done
2. Impulsive behavior
3. Inability to think or remember
4. Poor organization of tasks
5. Inability to monitor one's acts
6. Inability to maintain a train of thought
7. Poor physical coordination

8. Hyperactivity and hypoactivity
9. Difficulty in reading, writing, arithmetic, spelling
10. Distractibility
11. Extreme variation in functional ability
12. Difficulty in handling language
13. Speech and hearing disorders
14. Lack of resourcefulness

LEARNING DISABILITIES CHECKLIST

A learning disability checklist may be useful in recognizing learning disabled students in the vocational classroom or shop. Weiss and Weiss (1974) developed an informal checklist to help teachers recognize potential learning disabilities even when formal testing is available. An adaptation of the checklist is provided in the following pages (Figure One).

The checklist enables a teacher to gain insight into vocational students' problems. There are no standardized "norms" or statistical surveys which correlate to the factors evaluated on the checklist. However, a sensitive teacher can gain sufficient information to recognize potential learning disability problems and know which students should receive professional evaluations.

LEARNING DISABILITY GUIDE

Weiss and Weiss include a learning disability identification guide (Figure Two) from the Learning Disability report of the Robert E. Bell Middle School, Choppaqua, New York. This guide provides a realistic approach to problems faced by vocational teachers.

Figure One

Learning Disability Assessment Checklist for Teachers

Reading	Not at All	Occasionally	Frequently
1. Reading is mechanical, without expression			
2. Guess words based upon a few letters (the first, last letters)			
3. Reads unevenly			
4. Reads past mistakes without attempting to correct errors regardless of meaning			
5. Reads very slowly, sounding out words while reading			
6. Repeats words, loses place, goes back to find place			
7. Unable to blend sounds together to get words			
8. Moves lips during silent reading (subvocalizes)			
9. Does not seem to understand what he or she has read, despite ability to read fluently			
10. Comprehends what is read to him or her better than what he or she reads by self			
11. Does not read willingly			
Writing			
1. Does not organize ideas into meaningful paragraphs			
2. Punctuates incorrectly			
3. Does not write complete sentences			

	Not at All	Occasionally	Frequently
4. Reverses letters in a sentence; e.g., calm-clam; girl-gril; dirt-drit; saw-was			
5. Spells phonetically and writes nonphonetic words incorrectly; e.g., thier, howse, eaite, etc.			
6. Erases, crosses out, messes up work with scribbling when making corrections in written work			
7. Does not write within lines on paper or indent paragraphs; follows incorrect form for writing			
8. Written work deteriorates when under pressure of time testing or when work is long or demanding			
9. Work shows poor placement on a page. Work (especially math or drawings) is spaced erratically on the paper			
10. Avoids written work though highly verbal in class			
11. Oral performance far exceeds written work			
Speaking			
1. Does not articulate clearly and understandably			
2. Does not pronounce ending sounds in words correctly			
3. Has tendency to confuse words he or she hears: 'profane' becomes 'propane', 'animal' becomes 'aminal', 'very' becomes 'revy'			
4. Speaks quickly and nervously; thus is hard to follow or understand at times			

	Not at All	Occasionally	Frequently
5. Answers questions tangentially and has difficulty in getting to the point			
6. Has difficulty finding the correct words when speaking			
7. Interrupts self when speaking; distracts self and changes the subject; is fragmented and disorganized			
Listening			
1. Does not seem to listen to instructions			
2. Does not attend to what is happening in class			
3. Seems to misunderstand language			
Math			
1. Does not understand place value of numbers			
2. Has difficulty in spatial concepts and measurement			
3. Does not understand borrowing and carrying in math			
4. Cannot remember math facts (addition and multiplication) and recall them automatically			
5. Has difficulty with math problems that are written out in sentence form			
Attitude			
1. Does the student follow through on assigned work, or become disorganized and fail to complete assignments?			

	Not at All	Occasionally	Frequently
2. Does the learner often appear lethargic or apathetic, yawn, appear bored and without energy?			
3. Does the student seem to feel inadequate or negative, and put self down?			
4. Does he or she tend to be a loner?			
5. Does the student handle frustration by acting out agressively?			
6. Does the learner shy away from anything new academically, socially, athletically, for fear of failure?			
7. Does the student have a shorter attention span than most of his or her peers?			
8. Does the student claim not to need help? Avoid coming for help after school or during tutorials, for fear of appearing "stupid" or a "dummy"?			

Adapted from Weiss, Helen Ginandes and Weiss, Martin, S. A survival manual; case studies and suggestions for the learning disabled teenager. Great Barington, Massachusetts, Treehouse Associates, 1976, pp. 68-71.

Figure Two

Learning Disability Identification Guide

Poor Visual Perception Functioning

1. Student consistently reverses letters and words, either in reading or writing
2. Has difficulty in written expression
3. Penmanship is poor
4. Unable to copy correctly from a book or the blackboard
5. Cannot follow written directions
6. Poorly organized written work

Poor Auditory Perceptual Functioning

1. Cannot follow oral directions
2. Cannot tell a story in proper sequence
3. Student has difficulty in orally expressing ideas which he or she seems to understand
4. Student is inattentive during oral presentation of class work
5. Written expression is better than oral expression
6. Comprehension of oral language is poor

Marked Memory Problems

High distractibility, poor attention or general inability to carry out directions independently

1. Student has a short attention span
2. There is repeated failure, on a day-to-day basis, to recall what has been taught

Activity levels hyper-hypo which seriously interfere with educational progress

1. Student may become silly or angry more often or more violently than other students in the classroom.

2. Student may become more passive, daydream or withdraw

LEARNING MODALITY TEST

Nearly all persons learn by visual, auditory or kinesthetic means. It is important to know how an individual learns in order to prepare teaching material and techniques for classroom or shop use. Baxter (1975) developed a test which has been used successfully as an informal way of identifying learning modes. An adaptation of the test for vocational students has been developed and is found on the following pages (Figure Three).

Figure Three

Tests for Three Types of Learning

Test Ground Rules

To give the test, you need:

1. A group of not more than 15 students as it is difficult to observe more than that at one time.
2. A list of the students' names which you can mark as you observe their reactions.

V = Visual Learner
A = Audio Learner
K = Kinesthetic Learner

Reactions to watch for:

Visual Learners will usually close their eyes or look at the ceiling as they try to recall a visual picture.

Audio Learners will move their lips or whisper as they try to memorize.

Kinesthetic Learners will use their fingers to count off items or write in the air.

Conducting the Test

Start by telling your students that you are going to give them a test to determine what kind of learners they are: VISUAL, AUDIO, or KINESTHETIC.

This test consists of pretending that the students are going to the toolroom to get some tools for you. First, you will write the list on the board, allowing the students to watch you, but they must not copy it. Next, you will give them the list orally. You will not write it and neither must they. Then, you will dictate the list to them orally and they will write it down.

After each presentation, you will ask your students to repeat the list to you if they wish. If a student is not able to repeat the list, tell him or her not to worry. The response to your request should be voluntary and the list does not have to be given back in order.

Note: The most predominant characteristic is used as a symptom.

The specific test or tests in which the student has the highest recall is a reinforcement of his native way of learning. However, the symptoms are the prime indication

First Presentation

1. Write the list on the board while the students are watching. Do not let them write.
2. Allow students to view the list for approximately one minute while observing their reactions. Mark the symptoms after the students' names.

   Symptoms:

   VISUAL LEARNERS - Close their eyes or look at the ceiling. (V after name)

   AUDIO LEARNERS - Move their lips or whisper, (A after name)

   KINESTHETIC LEARNERS - Count the items on their fingers or write in the air. (K after name)

3. Erase the list.
4. Ask, "Who would like to repeat the items to me?"
5. Observe that the Visual Learners will volunteer first.
6. Call on them to recite ORALLY, one at a time. (Note that after a few students have recited, a few more timid hands will go up. These usually are AUDIO LEARNERS who have learned the list, not from seeing it, but from hearing the other students say the items.

List

Hammer

Pliers

Crescent Wrench

Screwdriver

Welding Rods

Level

Battery Tester

First Presentation	List
7. As you notice a student's symptoms, make "V", "A" or "K" after the student's name.	Square
Second Presentation	
1. Dictate the list ORALLY (no writing by either teacher or students). Repeat the dictation a second time, pausing for a moment after each item.	Tape Measure
2. OBSERVE that the VISUAL LEARNERS will close their eyes to try to SEE the items. The AUDIO LEARNERS will whisper each item as you dictate it. The KINESTHETIC LEARNERS will use their hands to mark off the number of items or will write in the air.	Screwdriver Chalk Line
3. Ask, "Who would like to repeat the list?"	Vise Grip
4. The audio learners will be the most eager to respond, although other students will try to repeat the items you have dictated.	Level Hammer
5. Make appropriate notation of "V", "A" or "K" after the students' names as you notice their reactions.	Paint Brush Pliers
Third Presentation	
1. Tell the students to have pencil and paper ready to WRITE the list as you dictate it ORALLY. Tell them you will not count spelling. In fact, spell the words as you dictate.	Chalk Line Plumb Bob
2. After you have finished dictating the list, tell the students to rewrite the list, and to look at the one they have written from your dictation.	Hand Saw
3. When they have finished rewriting the list, tell them to turn the paper over and WRITE THE LIST FROM MEMORY.	Tape Measure
4. After they have finished, check to see which students have been able to repeat the list wholly or in part.	Welding Rods Power Drill
5. Notice that students who are unsuccessful in either the first or second presentation of the test are frequently the first ones finished.	Pliers Square

(The test may be repeated, using numbers. Most students have a different form of recall for numbers than they have for words.)

Evaluation of the Test

1. A teacher will have a better understanding of the individual differences of the students.

2. The teacher can encourage the students to find their natural way of learning.

   While all three types of learning should be developed, a student should use his or her natural way of learning when under pressure to study the subject.

   > Visual learners should realize that while they learn fast, they can forget equally fast. To strengthen their recall, it is good to develop the practice of writing and outlining the subject.
   >
   > Audio learners will benefit from the use of a tape recorder. The more he or she hears a subject, the more recall is possible.
   >
   > Kinesthetic learners must write to recall material learned. Outlining materials is an effective method of strenthening recall.

   A photographic mind is like a polaroid camera: the picture develops fast and can fade equally fast unless the emulsion is placed on the picture. In the learning process, the emulsion is writing as well as looking. The photographic mind will often have a problem with abstract thinking, especially in mathematics. Seeing the picture in association with the abstraction often assists this student.

Usually, a person has more than one way to learn. An individual may be highly visual, fairly kinesthetic, but not audio. Any combination of learning methods is possible.

However, all three types of learning should be developed as far as possible in each student. An audio learner, should try to visualize what he or she hears. A visual learner should try to be more attentive in lecture presentations. A kinesthetic learner should try to listen and to visualize. All three need to write.

A teacher can cover all three types of learners in one group by presenting material in the three ways of learning:

VISUAL:	Ability to hear and write what is seen
AUDIO:	Ability to recognize visually and write what is heard
KINESTHETIC:	Ability to hear and visualize what is written

It is important to remember that students who show one or two symptoms of learning disability are not necessary learning disabled. However, if the student's problems consistently follow learning disability patterns, there is cause for further exploration of the problem. Vocational teachers should discuss the situation with the student and suggest a formal assessment to help identify appropriate teaching strategies and techniques.

After recognizing learning disability symptoms and characteristics, the next step is to modify the vocational curriculum to allow for mainstreaming of the student. Part Two is designed to provide ideas on how vocational teachers can modify curricula and help the learning disabled student compensate for his or her learning disability.

PART TWO

INSTRUCTING LEARNING DISABLED STUDENTS

WHERE TO START

Instructing learning disabled students is a challenge and requires extra time. The cooperation of others in the school and community will enhance the learning process of the learning disabled students. Teacher inservice or formal classes on compensating for the learning disability enable teachers to acquire needed information and materials.

Vocational classrooms and laboratories provide good learning environments. Techniques for teaching the learning disabled students are provided on the following pages. Imagination and ingenuity will enhance these techniques and help provide better instruction and results.

The learning disabled student's image of the vocational teacher is important. Vocational teachers should be genuinely interested in the welfare of the student. The most effective teacher really cares. It shows as the teacher eminates love and believes that the learning disabled student can learn.

The cooperation of those working directly with teachers and students is helpful. This includes special needs coordinators, tutors, support teachers, resource staff and special education teachers.

STRATEGIES FOR MODIFYING TEACHING TECHNIQUES AND MATERIALS

Specific modifications can be made in teaching techniques and materials to help the learning disabled student succeed in the regular classroom and shop. Details of some of these modifications are found on the following pages.

Listening Aids

Learning disabled students may need help in learning how to listen. The ability to listen can be strengthened and reinforced through the use of appropriate techniques. Help the student to listen to lectures and demonstrations. Explain the meaning of any gestures, hand waving, motions or facial expressions which are used. Let the students know the meaning of a raised or lowered voice, or pauses in the delivery. Be aware that learning disabled students may not be correctly interpreting gestures or body movements. Be aware of words that may have double meanings such as as hear and here, or their and there.

Help the student to listen for key points and to separate details from major points. Organize presentations so that major points are emphasized and so that students can take notes in a logical sequence. Notes should be reviewed after class and compared with the textbook or other materials.

Help the student to develop visual images of main points. For example, in preparing a car fender for painting, the steps may be to remove the old paint, clean the fender, apply primer, apply finish paint, and buff the paint. To help the student remember the five major points, develop an associate device in rhyming words such as in Figure Four.

Figure Four

Rhyming Word Associations

one - sun
two - shoe
three - tree
four - door
five - hive

six - sticks
seven - heaven
eight - gate
nine- vine
ten - pen

To apply the rhyming words ask the student to imagine the old faded and scratched fender, sitting in the sun, imagine a clean, smooth fender sitting in a show and a can of primer hanging in a tree. The shiny new fender could be caught in the door and the paint buffer could be attached to a bee hive.

Another method might be to use the first letter of each task for a word or series of letters to help in the recall process. In this case the letter would be RCPPB which would stand for Remove, Clean, Prime, Paint, Buff.

Students should be encouraged to ask questions or to ask the teacher to repeat statements that are not understood. Teachers should also supply a glossary of new words to be learned, preferably before the class in which they will be used. It will then be much easier to understand the concepts if the words are already familiar.

At the end of a lecture, demonstration or talk, review the major points and encourage students to ask questions. Students should be tuned in to the teacher's way of speaking and transferring information through the spoken word.

Reading Aids

Reading is a required skill in most courses. However, keep in mind that the severely learning disabled students will read not all, or at the first and second grade level. The more moderately learning disabled students can benefit by having vocational teachers reinforce reading skills.

A learning disabled student's specific reading disabilities may need to be diagnosed by a reading specialist. The student may then be enrolled in a supplementary reading program which is taught simultaneously with the vocational course or courses. The poor reader will have weak comprehension, poor expression, may use lip movements and do word-by-word reading.

Vocational teachers can capitalize on the existing ability to read. It is important to develop a method to identify and pronounce new words. A list of new words, along with the appropriate definitions, will help. These lists can be supplied, as needed, during the progress of the course. Help the student recognize key sentences and key words. Learning disabled students need help in using their ability to read and study. Most learning disabled students do not take good notes. Spend time showing them how to take notes on class materials and provide examples early in the course. The students should develop note-taking formats that are useful to their needs.

Cooperate with the reading specialist to help the learning disabled student read the required materials. Let the student know that you are willing to work with him or her in improving reading skills.

The lack of reading ability does not necessarily mean that the student cannot remain in the vocational course. Key points contained in written material can be communicated to the student in other ways. Audio tapes, demonstrations or verbal explanations can provide the same information. Utilize existing reading ability but do not rely on that alone.

Thinking Aids

Learning disabled students may be easily distracted and may not pay attention in class. They will have trouble in maintaining a train of thought and show much difficulty in making a choice. They may pay little attention to important points and not be able to answer simple questions about the skill being taught. The following suggestions may help a learning disabled student to organize his or her thoughts:

1. Ask students to describe a task they have learned and to explain the operation. An example might be how to type a business letter.
2. Ask the LD student to watch another student complete a task, then tell what happened. For example, have the student tell how to install a new water pump.
3. Give the LD student a disassembled machine or tool and ask the student to assemble it.
4. Ask the student to explain why a piece of equipment works or how to adjust a piece of equipment. For example, explain how to set up a lathe.
5. Give the student a chance to troubleshoot a machine. Set up a car that will not start and let the student find out why.
6. Conduct brainstorming sessions to find solutions to a problem.
7. Teach the LD student to organize his or her notes.
8. Have the student plan a major event and organize activities for the event. For instance, plan a chili supper or a class party or set up an assembly line to produce a product.

9. Have the student plan a field trip. Give him or her the destination and let him or her plan the time of departure, several stops, and return time.
10. Provide the student with a complex problem. Let him find the solution and record it.
11. Have the student set up an evaluation for the product produced in the laboratory. Have the student decide what would be an acceptable product and why.

Speaking Aids

Learning disabled students need to learn to express themselves if they are going to be able to communicate with fellow students, teachers and employers. Although the vocational teacher is not expected to be a speech teacher, some things can be done to help the learning disabled student improve his or her speaking ability while taking vocational courses.

1. Be sure the student is enrolled in a supplementary speech class, reading lab or remedial reading courses.
2. Make a glossary of the key words relating to specific vocational skills. Provide a picture of the process or item to help the LD student pronounce and learn the word.
3. Encourage the student to demonstrate a skill and tell other classmates how to do tasks.
4. Encourage students to think through what they are going to say, before speaking.
5. Provide students who are hyperactive talkers with a separate place to study. Arrange for them to listen to tapes. Remove them from a situation where they disrupt other students and themselves.
6. Provide or recognize opportunities to build self-confidence and give praise.

Math Aids

Mathematic skills are required in many vocational courses and are necessary in everyday living. The most commonly needed skills in vocational courses are measurement, simple addition, subtraction and multiplication. Reading and conceptualization may interfere in solving basic math problems. Try the following ideas to help math students:

1. Encourage students to learn the basic units of standard and metric measures. Rulers and other measuring instruments should be available to give students as much hands-on information as possible.
2. Allow the use of calculators, when and where possible, to help students solve problems and eliminate errors caused by math processes.
3. Use visuals, tactile materials, and demonstrations to solve vocational math problems.
4. Work with special education and math teachers to help LD students obtain and use important math skills. Let the math teacher know what kinds of skills are needed and get a learning disabilities specialist to help teach these skills.

Writing Aids

The learning disabled student will write slowly with numerous errors in spelling and mechanics. Organization will be poor. The student will be reluctant to do written work. Written assignments may come in late, if at all. Lack of writing ability and lack of confidence discourage the student from trying, and limit productivity.

The following ideas may be tried to help the LD student succeed:

1. Encourage the student to write out ideas to the best of his or her ability, preferably in a sequenced outline form. Do not overemphasize spelling or mechanics.
2. Encourage students to draw simple pictures or diagrams where possible.
3. Be sure to keep samples of the student's successful work outlines or diagrams. This will show the student that he or she is progressing.
4. If a student is reluctant to do outlines or diagrams, ask the student to express ideas orally. Then outline ideas as the student talks, showing how his or her ideas would appear in writing.
5. Allow the learning disabled student to acquire copies of classmates' notes to see the important points.
6. Use a tape recorder to record class lectures or demonstrations and allow students to borrow the tapes for home or out-of-class listening.

7. Give oral exams if necessary.
8. Provide students with notetaking skills, such as taking down key words or concepts and organizing notes on the paper.

WHERE IS THE OPEN ROAD TO LEARNING?

Although the techniques to improve listening, reading, writing, mathematics, speaking and thinking, will help the student learn, vocational teachers must teach to specific learning abilities. Teachers need to know if the student learns best by the auditory, visual or tactile modes. Special education instructors, school counselors or the student's teachers should be able to identify the most successful learning mode of the student. If not, vocational teachers may need to identify the learning mode themselves.

It may be sufficient to ask the student how he or she learns best. Compare the student's reaction to a set of written instructions with the student's reaction to the same instructions on tape. This may give a clue. Demonstrating the same instructions in the laboratory may also yield a clue. The informal test on pages 7-9 may help a teacher to decide which learning mode is best for a student. Fill in the answers while observing the student. More formal tests are available from school psychologists.

Once the teacher has identified the student's learning mode, he or she can proceed to develop appropriate teaching techniques. Ideal teaching would include auditory, visual and tactile teaching approaches. Such an approach would help the regular vocational student as well as the learning disabled student. Nearly every person, whether handicapped or not, has a preferential learning mode.

BE CREATIVE

Learning disabled students may be highly creative but may not demonstrate creativity because of frustration in the educational system. It is up to the teacher to bring out this creativity. The best way is to be creative in teaching and in helping the student to do his or her best. Teaching in the auditory, visual and tactile modes challenges a teacher's creativity. Teachers should not be afraid to try different and varied teaching techniques.

Teaching an Auditory Learner

Auditory learners need special emphasis on the hearing mode of learning. This means that special attention should be paid to oral presentations in the classroom and laboratory. Specific teaching techniques to help students to listen should be developed. Speak slowly and clearly. Asking students to pay special attention to lip movements will help. Be sure that the student is seated with a clear view of the speaker. Some students may learn best by closing their eyes and listening.

Vocabulary is consistently being expanded in vocational classrooms. Carefully pronounce new words and have the student practice saying the words. Tape-recorded lessons allow the student to review material. Encourage students to take notes and then check the notes to see if material is recorded correctly.

Read aloud while students follow along. This is especially helpful when giving directions for taking a test or for performing shop tasks. Oral tests and oral feedback will help reinforce learning. If oral directions are not also in writing, have the student write them down. Ask the student to repeat the directions or read back what he or she has written.

Directions may need to be repeated. It may also be necessary to allow more time for the student to respond to questions.

Use cues to alert the listener to important points when outlining material verbally. For example, the three major systems on this motor are: fuel, electrical, and cooling. Or the most important factors in corn yield are: water, light, and fertilizer.

Encourage auditory learners to repeat important points quietly to themselves and ask them to try and hear the words or major points.

Pictures, charts or lists of items can be used to teach visual learners if the content is verbalized. Explain the picture or chart slowly and in specific detail. Allow time for questions and ask the student to tell what is on the chart.

Another good teaching technique for auditory learners is role-playing. Set up realistic role-playing scenes in the shop or classroom. Let the auditory learners give a sales demonstration on the features of a new table saw and let other class members ask questions. Ask the auditory learner to demonstrate shop tasks to others and tell them how to perform the task. Let this student teach simple tasks to others. Encourage auditory learners to talk about their work with others.

Remember that auditory learners learn best by listening, and will retain information longer and more completely when the information is heard. Develop vocational instruction that includes the delivery of classroom shop information in the auditory mode. This will benefit students who learn mainly by hearing and will enhance the quality of teaching.

Teaching in the Visual Mode

Teaching students to concentrate on visual modes of learning is the key to helping the visual learner. This means finding ways to turn the spoken word into pictures, and using visual instruction techniques. Help the student to see the item of discussion, such as the metal lathe, the drill bit or the setting on the micrometer. If reading is involved, encourage the student to practice the look-say method. The visual learner will not benefit from sounding out words. If math problems are involved, make flash cards of problems, formulas or equation. Show each step on a separate card. Help the student to visualize story problems.

Encourage the student to underline key points when reading. Underlining with colored pencils will often help. Students should use wide lined paper for note-taking. They should be taught a note-taking format that clearly separates the concepts on each page. This technique will be worth the additional paper it will take. Suggest that the visual learner make a practice of writing notes to himself or herself and always carry a writing pad or 3x5 cards to use to record material for memorization or future recall.

Acronyms can also be used for the visual learner. Instead of saying the acronyms, as an auditory learner would do, the visual learner should try to visualize the words in his or her mind.

Teaching techniques should include a variety of visual aids. Draw and write on the blackboard. Use overhead projectors, preferably with colored overlays, graphs, diagrams or maps that are highly visual. Movies, filmstrips and videotapes are appropriate. Encourage the visual learner to use drawings, maps and graphs to complete assignments and to present his or her ideas to you.

Tactile Learners

Tactile learners will learn best by doing. Provide hands-on activities in the classroom and laboratory. Arrange for the tactile learner to get involved in hands-on experiences. Utilize accessible equipment such as tape recorders, calculators, typewriters and audio visual equipment in the classroom. In the shop or laboratory, the scope of the tactile learners experience is limited only by the imagination and ingenuity of the vocational teacher.

The student should begin using available tools and equipment as soon as possible. When studying auto mechanics, get the student involved in the assembly and disassembly of specific automotive parts such as the carburetor, or alternator. In a wood or metals shop, get the student involved in a project to construct or design items. Provide field trips to show the student where laboratory skills are used on the job.

Provide work experience or simulated work experience. Whenever possible, arrange a learning situation that involves activity. When conducting classes, bring the items under discussion to class and let the tactile learner feel or touch them.

When possible, let the students build models or replicas. Constructing model homes to scale would allow the tactile learners to acquire knowledge of acceptable building design and practices. Electrical wiring, plumbing and heating techniques can all be acquired by building models.

PART THREE

PROGRAM EXAMPLES IN TEACHING LEARNING DISABLED STUDENTS

INTRODUCTION

This section of the chapter lists several existing programs that successfully mainstream learning disabled students into regular vocational classrooms. A great variation of successful programs can be found throughout the nation. A variety of secondary and postsecondary programs provide appropriate services and modifications for teaching learning disabled students. A limited sample of these programs follows. The reader is encouraged to use those ideas that will benefit his or her students.

VOCATIONAL MAINSTREAMING

One of the best sources on how to teach vocational education to learning disabled students is Winifred Y. Washburn's book, Vocational Mainstreaming (1979). Washburn is an experienced learning disabilities teacher and provides teaching methods to accomodate the following characteristics of learning disabled students:

- physical skills
- social emotional skills
- oral language skills
- auditory skills
- visual skills
- arithmetic skills

In addition, the book contains information on staff training, parent participation, and how to process the student, classroom climate, and job placement techniques for use with learning disabled students.

Washburn (1979) has also developed a Vocational Skills Competency Checklist that vocational teachers will find valuable in the development of a 9th through 12th grade vocational program.

LEARNING STRATEGIES APPROACH

A learning strategies approach for teaching the learning disabled adolescent is provided by Alley and Deshler (1979). The authors define learning strategies as techniques, principles, or rules that will facilitate the acquisition, manipulation, integration, storage and retrieval of information across situations and settings. Their learning strategies model of instruction for learning disabled adolescents is designed to teach students how to learn rather than teaching specific content. Specific strategies, techniques, and rules that students can use in meeting the demands of the secondary curriculum are identified in the approach.

The learning strategies approach is thought to be most effective with learning disabled adolescents with normal IQ's, reading skills above the third grade level and who can deal with symbolic language. Alley and Deshler provide considerable detail on administrative arrangements, resource rooms, and the roles of the learning disabilities and classroom teachers. Specific strategies are set forth for teaching reading, writing mathematics, thinking, social interaction, listening and speaking. Vocational teachers can benefit from the work done by Alley and Deshler by utilizing the learning strategies approach where applicable in instructing their students.

LEARNING HOW TO LEARN

A program on Learning How to Learn is in operation at Lawrence High School in Lawrence, Kansas. The project has developed instructional objectives and provides guidelines for implementing these objectives. Vocational teachers could readily adapt these objectives to their course content. The objectives follow:

- time management
- scanning
- critical listening
- listening comprehension/literal level
- questioning

- notetaking
- skimming
- textbook usage
- flow charts
- text skills
- visual aids
- remembering

SUPPORTIVE SERVICES

Learning disabled persons may need supportive services when enrolled in vocational programs. The Alleghemy County ACLD Inc., in Pittsburgh, Pennsylvania, has developed the A.D.U.L.T. Vocational Program (Adult Developmental Understanding, Learning and Training Vocational Project for Learning Disabilities). Adult clients may enter the program if they are enrolled in, or are about to enroll in, a vocational program or if they are about to graduate from a vocational program.

Objectives of the program include an individualized educational plan to improve the possibility of program completion. It gives individuals an opportunity to raise academic skills to realize potential, a chance to improve self-image and develop self-confidence, and to improve communication skills to enable the student to compete for employment.

A FACULTY FOCUS

The Chicago Association for Children with Learning Disabilities, Inc., (1978) distributes a brochure, "On Learning Disabilities - Faculty Focus". The brochure was developed by two Joliet Township High School learning disability coordinators. The purpose of the brochure is to inform the classroom teacher of the services available from learning disability resource teachers. Instructional help and materials are available to help the learning disabled student function in the regular classroom.

Characteristics of learning disabled students are listed in the brochure along with teacher tips on working with these individuals. The brochure makes appeal to the classroom teacher to share the responsibility of instructing the learning disabled students with the resource teachers. This idea could be used in most schools to encourage the classroom teacher to use available services.

A TEAM APPROACH

A team approach to providing vocational education to learning disabled adults and other handicapped students is used by Stone (1979), at the Garden Grove United School District in California. This program is under the direction of the assistant principal in charge of vocational education. It is monitored and reviewed by the coordinator of vocational education. A vocational rehabilitation liaison counselor, a vocational placement coordinator, teachers of the handicapped students, and an instructional aid are available to help the regular vocational teachers develop and deliver vocational education to the learning disabled students.

The students' records need to comply with the Vocational Education Amendments Act of 1976 (P.L. 94-482 and P.L. 95-40). These records include:

1. lists of vocational education students enrolled in special programs who receive special services
2. descriptions of the special programs and services provided for those students
3. details of the identification and referral process relative to each student served
4. final reports of the results obtained for each student served

In addition, an individualized education program for each student is developed by an assessment team as required by the Education of the Handicapped Act P.L. 94-142.

The overall structure of the program provides for diagnosis of the students' vocational strengths, the infusion of vocational materials into regular classes and the provision of aides to assist the student in the vocational assignment.

Each aide works with five or less students at a time. Aides must have previous paid or voluntary experience working with handicapped students.

Instructional aides are to do whatever is necessary to adapt curriculum and the physical environment to help the handicapped student learn the vocational subject matter in a way that is appropriate to the student's ability.

READING PROGRAMS

Since reading is a major problem with learning disabled students, a successful approach to teaching reading is included. The reading program is the Roosevelt High School Title I Program "Upstairs School", in Portland, Oregon (1979). It has been detailed by Sapperfield (1979). The philosophy of the program maintains that all students can learn to read or improve in reading. It also maintains that all students would read if they could, not that they could read if they would. It is the teacher's responsibility to find out how the student learns and to teach that way.

Students experience many reading activities each day, such as sounds, blending words, dictation, spelling, oral reading, silent reading, recreational reading, creativity writing and comprehensive tests. Students quickly learn what is expected of them. They must follow the rules or accept the consequences, which is primarily spending time after school. The after-school time is called the "Charm School". The time is spent pleasantly helping students learn to meet the demands of the teachers. Examples of these demands are to be in class on time, to listen and to get along with classmates.

Although a total description of the reading program is not provided, the following list depicts the Upstairs School approach to the teaching of reading:

1. Each student has a right to learn to read or improve reading.
2. Good control must be kept in class if learning is to take place.
3. It is the teacher's responsibility to find and develop methods by which the student may learn.
4. Past failures are ignored and present success stressed.
5. Poor readers are extremely adept at picking up "body language" and, therefore, teachers' attitudes must be genuine at all times.

6. Students are not let down when they make mistakes.
7. Poor readers need a highly-structured, well-planned program, taught in a relaxed atmosphere.
8. Create a pleasant climate for learning.
9. Reinforce in the student the fact that his or her intrinsic worth and success is equal to that of the "most important" person in the school.
10. Success must be a part of each day's lesson.
11. Provide a non-threatening atmosphere.
12. Provide a reachable goal.
13. Teachers must be willing to teach, test and reteach the same material (with enthusiasm) until it is learned by the student.
14. Remember that poor readers often have poor visual memories.
15. Avoid the student's frustration level, work just under the student's ability.
16. Remember, the student has failed at least one hour per day for eight years or more. Make the time spent worthwhile.
17. Teachers should enjoy their work because they may be the person who "turns on" the student to reading and to future success.

SANTA ANA PROGRAM

Hoanzl (1979), at Santa Ana College in Santa Ana, California, has described a learning disabilities program for students who need assistance in vocationally-oriented class such as welding, fire science, electronics, nursing, auto mechanics and cosmotology.

The purpose of the program is to help students who are average or above in intelligence, and who exhibit one or more learning disability characteristics. The goal of the program is to enable the student to function sufficiently in regular college courses to accomplish a realistic educational or vocational goal.

To be eligible for participation in the program, the student must display learning difficulties of such severity that they interfere with the learning of basic skills expected of students of similar age. A significant difference between the student's potential and scholastic achievement must exist.

Examples of typical learning difficulties found at Santa Ana College include: comprehension, reading, vocabulary, basic math, memory, poor verbal expression, short attention span, auditory problems, visual problems, severe spelling difficulties, problems with written expression, or any combination of these difficulties.

Specific procedures have been developed for admitting handicapped students to Santa Ana College. These admissions procedures follow:

1. An initial battery of tests is given to measure:
    - levels of academic functioning
    - receptive and expressive language functions
    - intellectual capacity for academic learning
    - other measure deemed necessary
2. Test results are reviewed with the student by a learning disabilities specialist.
3. Qualified students will be enrolled in Special Services 063, Advances in Learning Potential, for zero to four credits. Up to eight hours of one-to-one tutoring based on an individual education plan is available.
4. Daily monitoring by a learning facilitator (tutor) and a weekly meeting with a learning disabilities instructor is provided.
5. An end-of-semester evaluation, including recommendations, is written by the learning disabilities specialist or the learning disabilities instructor.

Additional special services courses available to the learning disabled have been initiated. A list of these courses is given below:

1. Special Services 103, a three-unit class on Self-Adjustment for the Learning Disabled.
2. Speech 051, a Speech Clinic where students receive individualized speech therapy.
3. Adaptive P.E. 201, an individually-structured class for students who could benefit from a therapeutic aquatic exercise program to meet unique problems.

4. Adaptive P.E. 102, designed for students who can benefit from an individually structured exercise program.

5. Special Services 090, a College Learning Skills Course that is coordinated with existing classes and designed to increase effectiveness in the concurrent class.

6. Special Services 091, an intensive four-week Learning Skills Workshop designed to improve one or two learning skills.

7. In addition, individual tutoring in the content area courses are available through the learning center.

8. Students with physical disabilities may obtain help through the Disabled Students Center.

Hoanzl, Learning Disabilities Program Coordinator at Santa Ana College, lists the following ways in which instructors and learning facilitators (tutors) help the learning disabled student:

1. Students with reading difficulties may take tests orally in the Learning Disabilities Center. A tutor reads the test and it is returned in a sealed envelope to the instructor.
2. Class textbooks are used for reading, vocabulary, comprehension and math. Some instructors send the course syllabus, testing schedules and, sometimes, sample tests to the Learning Disabilities Center.
3. Students may use the Center's tape recorder to tape a lecture.
4. Small groups of students can work with a tutor or learning disabilities instructor in a vocationally-oriented laboratory to fill out applications, do a job search, role-play interviews, learn how to approach a supervisor with a problem, and learn how to dress for an interview or job.
5. Students from the nursing department can receive help on passing entrance examinations for the nursing program.
6. Study skills classes in note-taking, time management, textbook study, exam preparation, and text anxiety are available to help students pass courses.
7. Instructors and facilitators work closely with the Job Placement Officer to help students find work on the campus or in the community.
8. A class on Self-Adjustment for Learning Disabled Students, is held to help develop coping skills, learn how to deal with a disability; and how to feel good about oneself.

Two methods of evaluating vocational aptitude are available to the learning disabled student. The first method is vocational aptitude tests through the Career Planning Center. After testing, students meet with the Career Planning Technician to review test results and receive counseling based on the test results. The second method is through the off-campus CETA Program. In this program, students receive an extensive vocational evaluation that takes three to five days. The results are then sent to the college and students are counseled into appropriate vocations.

CONTENT TUTORING

Content tutoring, mentioned earlier, is provided by student tutors or learning assistants. All student tutors are recommended by their instructors. Close cooperation between intructor and tutor is maintained throughout the year. Content tutoring is conducted on a one-to-one basis as well as in small groups. There is no charge to the student for these services. Learning assistants (tutors) provide help in the following ways:

1. Explain methods for studying a course
2. Give suggestions on how to study the text
3. Review course outlines and objectives with students
4. Review and explain class assignments
5. Check student's work to see whether or not errors are being made, or to identify errors and make suggestions for improving work
6. Point out major topics, concepts and kinds of information in the course which are important in understanding the subject
7. Explain difficult concepts, methods, or information in the course
8. Explain how to study for an examination in the course, and how to identify topics which probably will be covered in the examination
9. Conduct review sessions before examinations

Test Administration Service

The Test Administration Service at Santa Ana College allows learning disabled students in particular classes to take quizzes and examinations on a self-paced basis. Instructors can give make-up exams without loss of time to the instructor while providing convenience to the student.

The Psychology Department, for instance, has scheduled several sections of Psychology 100 to be tested at the student's own pace. Tests are graded immediately and the students are given their scores. Students who are dissatisfied with their scores may retake the test twice. On each successive test, a different version is given. The score of the last test is the one recorded. Students are encouraged to review the material before retaking the test.

The Test Administration Service is responsible for test security. Students must sign out each test when taking it and check it back in when finished.

Brochures for Students and Faculty

Brochures have been developed for both the students and the faculty. Student brochures are directed at encouraging learning disabled students to use the services of the Learning Center. The faculty brochure helps instructors recognize students with learning disabilities and informs them of the services of the Learning Disabilities Center. A referral form provides instructors with an opportunity to refer a student to the Learning Disabilities Program and is included in the brochure.

Inter-Office Memo

An inter-office memo from the Learning Disabilities Specialist is sent to instructors with students who are enrolled in the Learning Disabilities Program. The memo volunteers the Center's assistance in helping the student meet the instructor's requirements. It also invites the instructor to utilize the resources of the Learning Disabilities Program at Santa Ana College.

PARALLEL ALTERNATE CURRICULUM

Arizona State University Demonstration Resource Centers have developed a "Parallel Alternate Curriculum" (PAC, 1979) for secondary level instructors. The PAC Curriculum offers secondary teachers an opportunity to provide effective individualized instruction for all students while presenting information in the content areas. It is designed to provide secondary teachers with alternative methods for meeting the educational needs of all students. The purpose is to provide information through visual, auditory and kinesthetic means, thus bypassing the disability of the low achiever. Non-print media would provide course content. Subject matter is acquired through recorded materials, lecture, television, movies, group discussions, etc. Reading instruction is not forgotten, but would be taught in a separate program by specially-trained teachers. The four PAC options for a content class are listed below:

1. A Total PAC in which all content and assignments are presented to all students in a non-reading format
2. A Partial PAC in which only a particular topic or unit is presented in the PAC format to all students
3. A Mini PAC in which only low-achieving students use PAC materials with the regular class
4. A Preference PAC in which students are presented with a choice of instructional procedures; the classroom is divided into learning style stations such as reading, discussion, listening, etc.

The following procedures are followed in implementing each PAC:

1. Identify learning outcomes. Let the student know what is required.
2. Possible alternatives for presentation are identified and considered for use, for example, taped books.
3. Available materials and equipment are identified for possible use.
4. Students are evaluated for learning style, learning preference and achievement level.

5. Alternatives for presentation are determined. These may include taped books or discussion methods. They may then be matched with student learning styles or preferences.
6. Softwares are developed for future use and may involve collecting slides, making transparencies or taping books.
7. Presentation is implemented.
8. Evaluation of student progress is administered in a traditional or alternative manner, such as oral or multiple-choice tests.

Suggestions for presenting content are listed below:

- lecture/discussion approach: develop brief outline of planned material and present to class before the lecture
- audio visual presentation: movies, slides, filmstrips, video, radio, transparencies, records
- guest speakers
- small group discussions
- individual discussion with instructor
- programmed learning: either reading or a combination of audio visual and reading
- reading: silently, simultaneously with taped version, listening to teacher or other student read aloud, listening to a paraphrased version of the material and following with charts, diagrams or printed material
- field trips
- projects: "hands-on" approach to making a model or other art projects that help establish academic concepts, facts, etc.
- peer tutoring outside of the classroom
- buddy system within the classroom
- contracts: establish prior expectations for achievement for grades
- work-study experience: limited time within the classroom, majority of time in the work field
- independent study: established agreement between teacher and student
- mini-courses: content units broken into smaller learning components; students not

responsible for large units of information at one time, but smaller units

- open classroom: large teaching area utilizing team teaching approach
- learning Centers: smaller areas of classroom where individual concepts are taught through self-motivating materials (possible audio visual)
- note-taking: high-achievers take notes with carbon paper to give to low-achievers
- course syllabus
- discovery of learning: Students are given a problem situation where no procedures are established and must develop their own methods for finding solutions, facts or drawing hypothesis
- supplementary texts and other written material: high interest and low vocabulary reading material.

Some suggestions for alternate testing procedures are listed below:

1. Open test: Students use textbooks, notes, study guides, etc. Short-answer and essay responses are most appropriate with this format.
2. Closed Tests: Students must rely on skills, concepts and facts they have learned or mastered without the use of notes or textbook. Multiple choice, true/false and matching type items are most appropriate with this format.
3. Teacher reads test and student responds orally, in writing or both.
4. Reduce reading level of tests.
5. Taped tests: Students listen to pre-recorded tape of the test and respond on answer sheets.
6. Small group tests
7. Student-made tests
8. Take-home tests
9. Alternative projects
10. Oral tests or oral reports
11. Student answers questions on tape recorder for teacher to correct later.
12. Students administer test: Competent peer administers test orally and can either write down student responses or have the student write his or her own response. The format is recommended for use with individuals or small groups.

VISTA DEL MAR SCHOOL

Perencevic, Kenny and Motta (1980), at the Vista Del Mar School in Los Angeles, conduct a program to help learning and behavior disordered students to enter regular vocational programs or go directly to jobs. Students spend twelve to eighteen months at the Vista Del Mar School to remediate learning and behavior difficulties before returning to a regular classroom.

Instruction is provided in a self-contained classroom. Students spend part of the time in the classroom working in vocational and academic materials related to their occupational or career choice. The remainder of the time is spent on the job. Materials are modified to meet the specific learning abilities of the students. Students who are not able to engage in work experiences are taught as many career education concepts as possible to prepare them for future employment. A modified classroom has been developed to accomodate an on-site prevocational skills program. Daily living and work adjustment skills are taught as part of the curriculum. School and agency staff work closely with students and employers to help the students obtain a successful work experience.

Students participate in a variety of work experience and vocational training programs while enrolled at the Vista Del Mar School. A list of these programs follows:

1. Venice High School Regular Occupational Program
2. CETA (Comprehensive Employment and Training Act)
3. CCOC (Central City Occupational Center)
4. SYEP (Summer Youth Employment Program)
5. ADEPT (Assisting the Disabled with Employment, Placement and Training)
6. West Los Angeles City College

LEARNING AND MUSCULAR ACTIVITY

The use of muscles as a learning aid has been explored by Barsch (1980). His learning research at Ventura College in California points out the following factors:

1. Those who use their body muscles when learning remember material longer.
2. There is a high correlation between mental alertness and physical condition.
3. Studying material in a novel way aids memory.
4. Physical fitness improves a person's chances of living a longer life.

Instead of sitting on a chair at a desk and studying in a traditional manner, Barsch suggests that the learning disabled student use various study positions and change the position every 15 minutes. Some alternative study positions are listed below:

1. Laying on the stomach
2. Laying on the back
3. Sitting Indian style
4. Leaning against the wall
5. Walking around the room

Another suggestion is to take a long walk and memorize material while walking. Try to think about the terms and concepts, stop for a moment, review the material and start walking again. Material memorized in this manner will not be easily forgotten.

Squeezing a small rubber ball during study times will enhance learning for some students. In this exercise, the ball is squeezed as hard as possible in the left hand two or three times a minute and then squeezed as hard as possible in the right hand. These and other body mechanic techniques at Ventura College have aided the learning disabled student in learning.

USING THE METRONOME TO FACILITATE LEARNING

Barsch also uses a metronome to aid learning disabled students. A metronome is a small electronic instrument which makes an auditory sound at a set rate and is usually associated with the field of music. Barsch utilizes the fact that students learn at different rates. He suggested several metronome ideas to improve study habits. One technique is to set the metronome at a slow rate and accelerate gradually as the student begins the memorized reciting of a series of time tables. The voicing pattern should remain consistent and each syllable spoken to the beat of the metronome, as in,"two times four is eight and two times five is ten". Two-syllable numbers get two beats when they are spoken.

Students have increased their reading rates by finding a comfortable metronome speed setting to use while reading and then increasing that speed by 20 beats per minute. The metronome is ignored but reading rates increase. Metronome techniques have also been developed to help students relax and to help hyperactive students slow down.

POSTSECONDARY VOCATIONAL EDUCATION

Benadict and others (1980), at District One Technical Institute at Eau Claire, Wisconsin, have developed a program that successfully mainstreams learning and other disabled students into postsecondary vocational classes. A special needs team provides services to the handicapped students. It consists of a special needs coordinator, a student services special needs counselor and two support instructors. All team members work directly with teachers and students, both in and out of the classroom. Examples of activities, requirements and ways in which services are provided are listed below:

1. Orientation days are held before the student enrolls to allow students and parents to meet with support staff, teachers, and rehabilitation counselors. The orientation provides students with an opportunity to become familiar with facilities.
2. Help is provided in filling out applications for school, division of rehabilitation, CETA, etc.
3. Counseling is provided. Social and emotional counseling, independent living, transportation and birth control are areas of concern.
4. Support teachers help students look for housing if necessary.
5. Support personnel try to learn students names as soon as possible.
6. Students are assisted with phone installation arrangements, checking accounts, medical and dental appointments, and landlord-tenant relationships.

7. Teachers selected to work with the learning disabled students exhibit an openness and willingness to work with the learning disabled students and have effective teaching style. They clarify their expectations and structure their classes each day.
8. Special needs staff and instructors communicate in person. Memos are used only as followup.
9. No stigma is attached to being learning disabled. Students are not isolated. Regular students are told that people learn at different levels and in different styles. A student who does not work as quickly as others is not therefore a dummy. Fast students are asked to help slower students. The reality of learning disabilities is explained to the regular students. A good working relationship among students, and between staff and students, has developed.
10. Daily problems are handled individually by listening, then making the appropriate decision.
11. Teachers view the special needs staff as persons available for tutoring and working individually with students.
12. Support teachers learn vocational skills themselves.
13. They may learn welding, auto mechanics or food and child care in order to give the handicapped student individual instruction.
14. Students are given immediate help, before failure occurs.
15. Students learn test-taking skills. For example, in an occupational-related course, all handicapped students failed the first test. After learning how to take tests, all ended up with an A or a B as a final grade.

16. Teachers are encouraged to contact the special needs staff when problems arise.
17. The same course outlines and objectives, but different teaching methods, are used for individual differences.
18. Learning disabled students are generally able to keep up with the regular students. However, they may need additional time to be taught by the support teachers using whatever means necessary to teach the vocational skills.
19. Tests are given orally by a support teacher. Questions are read and the student's verbal response is written by the support instructor. Teachers are urged to change tests to meet student needs and allow more time to complete the tests. Another change is the elimination of matching questions. Instead, multiple choice questions and fill-in-the-blank questions (with a list of possibilities) are encouraged.

20. "Serve Credit" is given. This means that a student has tried his or her best. "Serve Credit" could lead to a certificate. The student would need to take the course again for a better grade, in order to get credit toward a diploma.
21. The support teacher may recommend an "F" grade if the student did not try, was absent a lot or had a poor attitude. The Serve Credit is not automatic.
22. If the student is leaving the course or school without a job, or is counseled to leave, alternative goals are developed for the student.

SPECIAL AND VOCATIONAL EDUCATION

Many programs to help learning disabled students succeed in regular vocational classrooms are being initiated. An example of a developing program is the Mukwonago Area School Program in Wisconsin (Towle, 1980). The delivery system is based on regularly-scheduled meetings between special education and vocational education teachers. At these meetings, teachers review vocational curricula and select strategies to facilitate learning for the learning disabled student. Student progress is discussed and plans are made to assist the vocational teacher in teaching the student.

Special education teachers rotate weekly to a different vocational teacher. They review progress and identify areas in which the special education staff can assist. Essential elements of the curriculum are identified. Students are then given individual help to learn the materials.

Vocational teachers are currently in the process of developing vocational curriculum that focuses on the essential content of their courses. A persistent approach such as this, over a period of time, will develop appropriate vocational instruction. The knowledge and expertise developed by the vocational teachers is cumulative and will facilitate more rapid development of curricula as time progresses.

LEARNING DISABILITY PATTERNS

A table of learning disability patterns has been developed by Weiss and Weiss (1974), to show characteristics commonly displayed by learning disabled adolescents (Figure Five). The table is divided into five columns. The first describes the symptom diagnostically, the second examines how it is seen at home, the third, how it is seen at school. The fourth column suggests remediation techniques, corrective methods to promote higher levels of performance. Many of these techniques can be used by parents as well as teachers, although most specific remediation is school-oriented.

By the time the learning disabled student has reached secondary school, he or she has lost several years of access to information. Due to a lag in skills, performance is not equal to his or her peers. Negative feelings have developed and cause certain doubts when the student confronts a new learning process. The last column, Pressure Relief Values, is aimed at relieving intense academic pressure on the student during remediation.

TECHNIQUES AND STRATEGIES AT THE SECONDARY LEVEL

Otazo (1979), in her work as a secondary special needs coordinator in Massachusetts, identified many techniques and strategies for working with learning disabled and other handicapped students. The following pages list modifications that were successful at the secondary level over a period of several years (Figure Six). The extensive list provides the vocational teacher and others with a broad range of ideas to use to develop vocational instruction for learning disabled students.

CONCLUSION

Learning disabled students can be successfully taught in the vocational classroom and shop by creative teachers. Preparation to teach learning disabled students is an ongoing process that involves learning more about how to teach and more about the learning disabled student. The instructional process should involve a wide range of personnel and services.

Vocational teachers, and others concerned with the instruction of learning disabled students, need to upgrade teaching skills and materials. The list of resources at the end of this chapter and the annotated bibliography which accompanies this handbook provides additional sources of information. Remember that students may have more than one handicapping condition and that a knowledge of the various handicapping conditions is necessary for effective teaching. Therefore, persons concerned with the instruction of handicapped students need to study all disability areas.

ASSOCIATION FOR CHILDREN WITH LEARNING DISABILITIES

The Association for Children with Learning Disabilities is a national organization of parents and professionals concerned with the problems of learning disabled people of all ages. ACLD is active in the collection, development, publication and dissemination of materials on learning disabilities. ACLD has a vocational committee to study and promote the vocational needs of learning disabled people and to select national conference programs in the vocational area. Recent National ACLD Conferences have included many programs relating to the vocational education of learning disabled students. Information on ACLD publications and activities can be obtained by writing to the Association for Children with Learning Disabilities, 4156 Library Road, Pittsburgh, Pennsylvania 15234.

Figure Five

Remediation of Learning Disability Characteristics

Symptoms	How is it seen at home?	How is it seen at school?	Remediation Techniques	Pressure Relief Valves
Hyperactivity	Volatile behavior	Unable to sit through long classes	Give student appropriate outlet for energy Medication may be prescribed Extra gym classes Extra Shop work	Permission to leave long talky classes Motor-activity
Hyperactivity & Disruptive behavior	Volatile behavior, appears to have a "chip on the shoulder"	Unable to sit through long classes Unable to sit through lectures Unable to sit through "talky" classes	Involvement in art or music, lab courses, industrial art, automotive or other vocational shop. Medication may be prescribed Encourage courses including learning by "doing"	Allow a break during long talky classes Counseling to encourage better self-image. Make teachers aware of disability
Hypoactive behavior	Lethargy Passive behavior, often spends hours in room - earphones tuned to phonograph	Appears discontent, passive, uninvolved in those classes requiring consistent talking, handling many details	Medicaton may be prescribed Check with doctor for sugar imbalance Often similar characteristics of allergy prone teenager. Try high protein, low sugar diet	Teachers must be aware that behavior may be a question of body chemistry, not just boredom Try highly motivating activities, field trips, special assignments, movies, alternative classes, etc.
Allergy	Nose runs, eyes red, especially during spring and fall	Nose runs, eyes red, especially during spring and fall Similar symptoms to those seen with some drug use	Check with doctor Medical desensitization Use of antihistamine decongestants	Apply less pressure during peak allergy season when student has less interest and concentration
Excessive mood swings	Frequent outbursts of temper, volatile behavior, overreaction to routine demands Most adolescents are subject to mood swings. It is largely the degree and/or severity that creates a problem	Similar	Don't feed it by responding in kind; try to ignore it Avoid conflict by sending out of room until he cools off. Then explain how others react to this behavior	Avoid confrontation while anger is high, and before peers. Otherwise challenged to defend himself before his strictest critics Positive group counseling for better social awareness
Diffuse, scattered, disorganized behavior	Tendency to move from one activity to another, often appears purposeless or non goal-oriented	Lack of concentration on goal-directed behavior, can't complete projects Loses interest when frustrated	Focus on something that interests student, e.g., skiing, photography Try to work through one project of high interest Assign papers and movies on student's interests	Tailor assignment to a realistic, step-by-step amount Modify grading on reading assignments and reports in all subjects Counsel parent and student

Symptoms	How is it seen at home?	How is it seen at school?	Remediation Techniques	Pressure Relief Valves
Turned off "Anti-achiever"	Total lack of initiative in dealing with life situations, unreal goals	Avoids competition of any kind Avoids school related activities Negative attitude concerning value of school	Needs small successes to prove "self-worth," succeeding will ultimately alter attitude Counseling and reality therapy often help in confrontation with real world Alternative approach classes such as mini-classes Teach from a strong personal interest be it mini bikes, cars, skiing, flying, "girls"	Traditional grades as goals achievement modes don't work Focus on self-control, successes affect behavior Highly selective choice of teachers Informal classes allowing more freedom-"getting into people rather than into subject." Try to arrange a work-study program to give meaningful experience plus self-worth via job Look for a strong interest in a vocation and give training if possible
"The over-achiever" "Worrier"	Worries excessively about performance Student is anxious, represses feelings Requires much help from parents or he panics Tends to be overdependent Highly motivated, afraid not to fulfill all requirements	Overperforms to cover for inadequacies Will copy work from others Will write from encyclopedias Will perform poorly on tests Tends to be excessively anxious to please teachers all the time Fearful about expressing opinions, making judgments despite his ability to "spit out" exactly what is learned in class May freeze and become excessively anxious on exams	Give shorter assignments Give alternative reading book of of high interest, lower vocabulary Give assignments to parents in advance to allow planning and avoid panic at pressure Bring skills up via intensive corrective program when and where appropriate Teach via "problem-solving approach" Try to avoid rote memory demands	Same as remediation " " " " " " Needs much counseling, aim at independent performance Simplify demands so that they can be accomplished
Poor overall reading skills	Poorest work is accomplished in reading-related subjects May seem not to try to accomplish reading May be unwilling to read aloud	Poorest grades achieved in reading-related subjects May seem not to try to accomplish required reading When tested, his reading level will indicate marked reading score discrepancy when compared with I.Q. or verbal skills	Allow use of tapes of reading material Give alternative reading text (See book list in Appendix) Give shorter reading assignments, highlight important passages in book for him Allow student to purchase book and underline in it for visual recall and note taking	Deemphasize reading of Text and Exams Emphasize audio visual materials Tapes and projects

Symptoms	How is it seen at home?	How is it seen at school?	Remediation Techniques	Pressure Relief Valves
Reads slowly but on grade level	He will read what interests him - sports page, magazines, short stories, *Mad* Magazine, comic books	Seem to understand what he reads but never completes assignments Reads too slowly to keep up with work Does poorly on tests involving reading long questions He does poorly on tests requiring written essays Will do better if given more time to complete an assignment or test involving reading	Teach techniques of skimming Teach reading to answer specific questions using Chapter headings Introduce Preface Table of Contents Summaries Teach phrasing to speed up reading by thought groupings	De-emphasize time tests Give extra time when possible Consider marks less significant Give high interest, less demanding reading to get him to "read to learn" rather than struggle to "learn and read" Give shorter reading assignments but on grade level
Reads adequately but appears poorly motivated to read He just doesn't enjoy reading He may have had difficulty learning to read	Chooses to do any activity except reading	Does not complete reading assignments Engages willingly in other activities than reading Seems to read adequately but prefers not to read	Read and discuss unusual material such as editorials, columns, *Mad* Magazine, discuss political cartoons, books of cartoons, short story series, contempory interest materials, lyrics from music such as Beatles or Bob Dylan, news clippings and articles	Allow for alternative style of performance through taped report projects, manual arts, listening to tapes while reading Allow writing reports on movies or TV Specials instead of always reporting on reading
Appears to have good word attack skills but poor comprehension	Appears to do assignment but gets poor marks Often does not understand his poor performance	Appears to do his reading assignment but doesn't understand context in class. Poor test scores, poor understanding of the subject	Encourage reauditorization by having youngster summarize what he has read out loud immediately after reading	Allow reading in less difficult materials to encourage comprehension Use tapes, TV to improve comprehension through visual and auditory channel Use his interests as a motivational factor to encourage reading
High level of comprehension, poor word attack skills	Appears alert, intuitive, has verbal skills in contrast to school performance achievement skills	Contradiction in performance between expectations and achievement, seems not to be trying	Verbal discussions of any topic information to be encouraged Intensive remediation in linguistic approach to word attack by syllable analysis Preteach any special subject vocabulary, i.e., language of auto mechanics horticulture electronics Give him definition lists of complicated terminology	Don't force reading aloud Allow use of tapes to gain information auditorily

Symptoms	How is it seen at home?	How is it seen at school?	Remediation Tecnniques	Pressure Relief Valves
Poor immediate memory Poor delayed memory Poor sequential memory	Has difficulty recalling almost everything he is asked to do Forgetfulness often appears willful Almost appears partially deaf Appears confused when given a list of instructions	Retains little even right after discussion Seems to lack the "desire" to remember Retains little after 1 or 2 day delay... forgets even material received Poor spelling, omits steps in science, in solving geometric problems, etc.	Eyeball to eyeball conversation always to reinforce auditory recall by visual clues Write lists, draw maps to help locate thing Teach memonic devices memory clues and techniques Try to relate information, dates and places to significant personal facts of student's own life Write lists of instructions, checklists for step-by-step processes in science, math, etc.	Try rewarding for remembering instead of punishing for forgetting, avoid penalties for forgetting Use short quizzes for reminding - not tests Use programmed materials - add written reinforcement of recall Try to give reminder checklists wherever possible Reward remembering
Poor auditory sequencing and auditory confusion	Parents can recall his humurous "spoonerisms" - may be part of maturational history and recall when talking about student in earlier years He may appear to be "not listening because he confuses words and does not follow what is always said. . . Can't follow broadcasts on radio or TV - says announcers talk "too fast" actually he can't "process" the words fast enough therefore, loses trend of thought Says funny garbles words such as "renember," "irrevelant," or runs words together: "Igot Ain poison posture" "I got A in poise and posture"	Appears to be careless, inattentive or clowning to gain attention Temporal errors, NO pauses between words. For example, student said "I received an A on "poise and Posture" as I received an A on "poison-posture" Can't follow lectures or very talky classes Confusion of sounds, e.g. student confuses The Last Days of "Bombay" for The Last Days of "Pompeii"	Slow down words spoken in sequences, so words will not run together and lose meaning Watch for confusion and reexplain complicated ideas Strengthen visual channel of learning whenever possible, e.g. give pictured material factual experience Use filmstrips audio visual materials when possible	Be aware that things are not always what they seem for student His confusion of a word may cause confusion of time and place as well Try to anticipate his errors by enunciating clearly, repeating and illustrating ideas whenever possible with visual clues, e.g. drawing pictures, etc. Do not assume he knows so-called common words places, people, etc.

Symptoms	How is it seen at home?	How is it seen at school?	Remediation Techniques	Pressure Relief Valves
Poor written expression, unable to write compositions	Hates to write compositions, letters, etc., anything that might reflect upon himself as "stupid." Avoids all written work requiring original expression	Avoids all written tasks, written expression is far below level of oral expression Written work appears poorly conceived, organized primitively for age	Teach student to write as he speaks by use of: tape recorder Have him answer a question on tape, or write a paragraph orally. "Then write down his own words using tape deck. Allow student to practice copying simple complete sentences from books Give student scrambled words to rearrange into sentence, then two sentences, then complete paragraph Give lists of vocabulary words on topic, e.g., "History of economy" Give definition list of recession depression inflation, etc. Teach student to write complete sentences one at a time Work up to 2-sentence paragraphs, then 3-4-, etc. Say aloud then write	Measure the quality of such a student by his oral answer not his written ones Allow student to tape longer responses, such as paragraphs, reports, papers and then write an outline or precis later Decrease amount of written work required and extend time allowed. "Quality, not quantity"
Poor spelling Characteristics phonetic respelling, e.g., "shoo" for "shoe" "angzity" for "anxiety	Avoids writing tasks Seems to make simple primitive errors long after the age where they are appropriate Errors appear to be careless but follow a pattern	Hands in written work with many errors. Errors appear "careless" Student may avoid all written work rather than risk making so many errors Student appears not to improve in spelling despite repeated corrective practice Transposes letters, poor sequencing, omits letters, confuses and substitutes letters	Teach by omitting specific letters to highlight recall of error within word Teach spelling patterns by linquistic approach. Teach many words of one pattern only. Omit letters of that pattern. Only "tion" words, e.g., no t i o n mo _ _ _ _ sta _ _ _ _ ra _ _ _ _ Highlight pattern in green or red, e.g., ou _ _ t ei _ _ t so _ _ t Reteach spelling via "syllables analysis" approach, spelling workbooks Teach him to subvocalize (say to himself) for recall of symbol sequences	Do not work his pages with red pen or he may respond with an angered (red!) reaction Write corrected words at end of page Try to analyze pattern of errors to give individual qualitative evaluation Always correct errors by writing correct form of word so student can see and learn Marking spelling. Do not take off grades for spelling errors. Give 2 grades if necessary--one for content (ideas) the other for performance (spelling sentence structure)

Adapted from Weiss, Helen Ginandes, and Weiss, Martin S. A survival manual; case studies and suggestions for the learning disabled teenager. Great Barington, Massachusetts, Treehouse Associates, 1976, pp. 109-120

Figure Six

Techniques and Strategies for Teaching Learning Disabled Students

Reading

1. Evaluate the readability (reading level of all chapters of a text, manual, pamphlet or handout.
2. Have available materials at many reading levels - from elementary to college level.
3. Record lectures.
4. Have recordings of texts available. These may be obtained commercially or have students record them for extra credit.
5. Request easier-to-read materials from publishing companies.
6. Texts that are easier to read at any reading level usually have the following characteristics:
    a. pages that have enough blank space so as not to be confusing; this is especially true when there are pictures or diagrams involved.
    b. bold print or capital letters or different colored ink for important subject headings.
    c. vocabulary in bold print or defined on the same page it is used or at the end of the chapter.
    d. a glossary and index - the glossary should include a guide to pronunciation.

There are several different methods by which you can determine the readability of instructional material. Check with the special needs personnel of your school, your vocational director or your State Department of Education consultant. Readability is not at all difficult to determine and will save you and your students hours of frustration and difficulty.

Readability is only one concern. Let's look now at the questions of goal setting, giving directions, presenting material, note taking, vocabulary, examinations, skill acquisition, behavior and evaluation and grading.

Goal Setting

1. Allow each student to experience success based on his or her ability and, when necessary, modification of instruction.
2. Tell students precisely what you expect them to memorize or know. Example: "You must memorize this procedure." "You don't have to memorize this; you will have the table to consult."
3. Tell them precisely what you expect them to produce.
4. See if they agree that they can meet your expectations.
5. Tell the student each day or week that separate and discrete goals are expected.
6. Set up contracts with students who are not producing.

Goal Setting (cont.)

7. Establish short and long term goals for each student, based on the student's ability and continued progress.
8. Decide whether it is memorization or understanding that is more important.
9. Emphasize quality or quantity; not both.

Giving Directions

1. Give only one or two directions at a time and check to make sure that they are understood.
2. Very specific instructions -- leave spaces.
3. Ask students to put your directions into their own words.
4. When there are written directions, try to make sure that each section of an exercise has its own directions; even if this means that you must duplicate them.
5. Read directions to the class.

Presenting Material

1. If you cannot read a mimeographed handout of your own, think about the student who has troubles without this added frustration.
2. Break down complex ideas and tasks into smaller component tasks.
3. When presenting material, explain a phrase or a sentence at a time, and pause. Slow down to 55 words per minute (and save!).
4. Decide what prerequisite skills students need to successfully handle the material presented. Do your students have them?
5. Write important phrases on the board as you say them. Seeing and hearing at the same time acts as a reinforcement.

Note-taking

1. Print information on one side of the board at a time...walk to the other side and continue... come back to the first side and erase. Then, start all over. This gives the student a chance to copy as much information as possible. Make sure to print. Teach your groups how to outline, scan for key information and locate answers in the material.
2. Leave blanks in a hand-out.
3. Emphasize important material in some texts with a colored "hi-lighter." Let your weaker students use the texts that you have thus outlined.
4. Use overhead - keep notes.
5. Decide what material the student really must know and what material must be memorized. If a student understands a concept, he or she will retain it better than if it is simply memorized.

Note-taking (cont.)

6. If students are required to copy outlines or long passages, either from lecture or from the board, mimeographing the material helps.

7. It may be easier for the student to memorize material if it is mimeographed than just in lecture form.

8. It is helpful for the instructor and the student to have the five or ten main points of the lesson (phrases are enough) in front of them during the class. Mimeograph and leave plenty of room between each heading for the student's notes. Instructors might ask the student to keep these in a folder or notebook. This collection of notes gives students with poor memory and poor organizational abilities something to both organize their thinking and help them remember.

9. Outline the work for the entire week, day by day, including pages to read, homework assignments, projects and so forth.

10. Demand organization from the students; folders with pockets are cheap and re-usable each term.

11. Use a student that you know is a good notetaker for getting information to one who is not. Use carbon paper, xerox, etc.

12. Tape your lecture.

13. It is often difficult for students with learning problems to generate a procedure operation on their own. It is helpful to return to basic principles which are involved in each new procedure.

14. Pictures in textbooks help the student to visualize and conceptualize. However, it may be necessary to coordinate the picture with the part of the text it represents. Color coding may be helpful in these cases.

15. It is important to associate symbols with concrete examples. Flash cards can be used with picture examples.

16. Asking students to visualize and possibly act out the steps in an operation may assist them in learning.

17. The ability to read charts and graphs may be a skill the student has never acquired. It may be necessary to teach this concept as a separate skill.

18. Reviewing daily and going back to already-learned ideas helps students with learning difficulties. It is surprising how fast students may forget what they seemed to know well.

Vocabulary

1. Define terms in words as simply as possible. If one word in a definition is not understood, the whole meaning can be lost.

2. Use operation definition. That is, "what is it used for" can be most effective. Remember to evaluate on this basis, too.

3. Deal with new vocabulary by relating it to words and terms that have already been learned.

4. Always place vocabulary in the context of a sentence or paragraph.

Vocabulary (cont.)

5. Use the words in the context of the job or other related area so that specific examples stimulate interest and motivate the student to learn and remember. Make it funny or absurd to help memorizing. Example: quenching treated steel makes it harder and "not thirsty." Draw some steel drinking.

6. Have students put new vocabulary into their own words and give examples: "Tina drew on the metal with a scriber."

7. If applicable, show the language root of the word, and divide the syllables according to pronunciation.

   Example: py rom et er - an instrument for measuring very high degrees of heat, as in a furnace or molten metal.

   "John measured the temperature of the furnace with a pyrometer."

Examinations

1. Recognition is easier than recall. Can you evaluate this way?

2. Avoid essay questions, especially when there are students in the class with difficulties in writing effectively.

3. Keep language simple and directions short. Avoid sentence structure which may be difficult to understand.

4. Keep directions short, and repeat for each section.

5. For fill-in questions, supply a word list. Students with learning difficulties often have word-remembering problems. They may know the concept and be able to recognize the word without being able to recall or spell it.

6. For multiple choice, the longer component should be on the left and the shorter on the right.

7. For worksheets dealing with essay answers, initially give page number beside questions. Gradually ease off on the numbering.

Skill Acquisition

1. Doing things in sequence is often troublesome. Breaking down the sequences into smaller groupings may help.

2. There is often difficulty in understanding basic directions such as left/right, clockwise/counterclockwise, and turning things. It is better to use a fixed object in the room (windows, doors or other machinery) that a student can remember, rather than the designations "right" and "left." For example: "Move the wood toward the window."

3. Occasionally, a student will have a problem with the coordination of the right and left hand, two-handed tasks, or tasks involving one hand for safety while the other pushes. Hand and finger positions could be pointed out, approximated and practices. Tactile or other clues for hand and feet placement give extra help.

Behavior

1. Tell a student when he or she does something right, even when it is a small thing.

Tips for Memorizing

1. Put into a context. Always emphasize the main point when talking about the details.
2. Repetition helps in small frequent doses. Five minutes a day will be enough for rote memorization.
3. Some pressure (for short periods of time) helps the concentration necessary for memorizing. One minute speed drills for math problems after the initial practice period drills with the student correcting his/her own answers work well.
4. A good technique for memorizing vocabulary words or spelling is to:
   a. Write the word while copying it letter by letter from a model.
   b. Count the number of letters.
   c. Write the word in syllables. Say the syllables.
   d. Cover the word and write in syllables from memory.
   e. Compare and correct.
   f. Write the word from memory.
   g. Compare and correct and start the process again if incorrect.

   This whole process takes about one minute.
5. Mnemonics are one of the best devices. They may initially take some skill and imagination on the teacher's part to make them catchy and concrete.
   a. Make up a short rhyme.
   For memorizing the "ight" words in English make up a rhyme (there is only a small number of them). "The knights like to fight in their bright armor. They might be on the right in light before the night.

   The students can do an even better job of making a catchy and silly rhyme.

   b. Have the student picture what they need to know. To remember the days of the week (when you need to do something or when something is due):

   Monday = "money" (a pile of coins and bills)
   Tuesday = dues day (picture your dues being paid)
   Wednesday = wed day (picture a bride)
   Thursday = thirsty
   Friday = fry day (this was easier when it was fish day. Picture fried fish)
   Saturday = sat day (the day you sit -- see yourself sitting)
   Sunday = sun day (picture a bright sun)

   * Notice that this technique uses rhyming and visualization. Both of these are very useful devices.

   c. Draw a picture around a mathematical formula to cover the whole formula with a pattern so that the students do not leave any part of it out.

Tips for Memorizing (cont.)

5. d. Encourage students to fantasize and let their minds wander when they are trying to remember. What does the material remind them of? A device that they come up with will be long remembered. It works better if it's suggestive or silly. In carpentry, the student will remember the flashing, hips or underlayment better if they see the term visually with its suggestive meaning. It's important to picture the term in its real meaning with the memory device attached or superimposed.

   e. Rhyming words can increase in value if they are additionally connected to the words or idea you are trying to memorize. Using the word "statue" to help a student memorize "statute" is increased if you also note that a "statute" tends to be permanent and fixed like a "statue". (For this one, the Statue of Liberty works well because it's familiar).

   f. Repeat words or directions to memorize on cassette tape. Have students play during class period a while during other tasks.

Organizing and Structuring

1. Each student should have loose leaf paper of different colors or a spiral bound notebook for each class.
2. Folder with pocket in it to hold papers from each class. (A brand name is "Duo-Tang") This can be hole punched to fit in notebook.
3. A paper calendar for the loose leaf notebook of approximately the same size as the notebook. (Banks are a good place to obtain multiple copies). Place at front of notebook.
4. A plastic pouch of pens and pencils (always have two with you) that has holes to match notebook ring binders.
5. A code reminder to indicate when an assignment is due and another for a week before it's due.

Procedural Organization

1. When giving an assignment have the class mark their calendars immediately. To reinforce its use, have them refer to it daily.
2. Set time and quantity goals for each student and grade all aspects of the assignment, quality, time usage, and quantity.
3. Contract for behavior changes and have the contract go in the notebook.
4. Assign grades via xerox checks so that students have a sense of the "real world," and have a chance to use reading and math skills. Have them keep an "account."

Adapted from Otazo, Karen. Methods the vocational or mainstreamed teacher can use to help the disabled student succeed CANHC-GRAM. Sacramento, California, California Association for Neurologically Handicapped Children. July-August, 1979.

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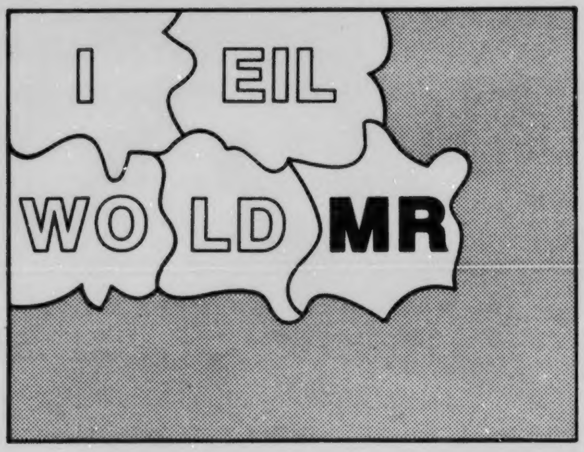
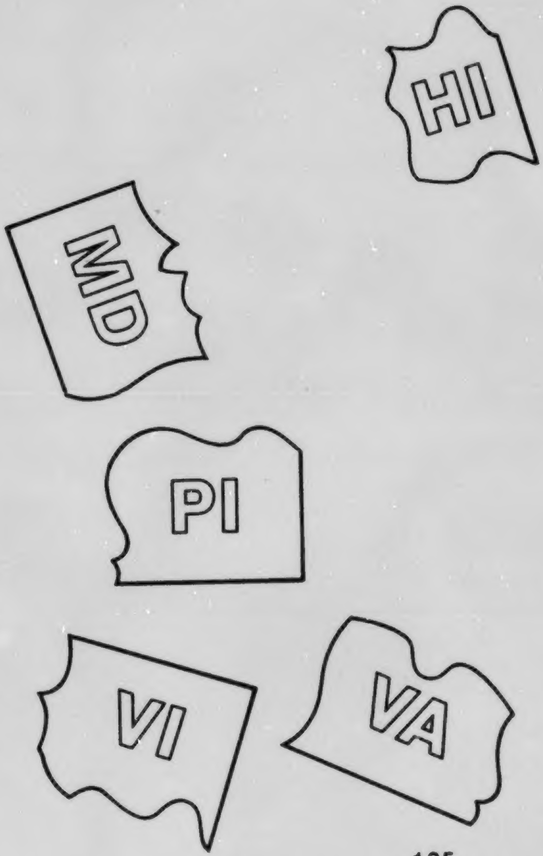
CHAPTER V





Mental Retardation

John J. Gugerty

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PART ONE

WHAT IS IT LIKE TO BE MENTALLY RETARDED?

MYTHS

Mentally retarded individuals are handicapped by prejudices and misconceptions of many Americans, including educators. Such misconceptions can be expressed as a group of myths about retarded persons:

Myth

Retarded persons cannot control their actions and emotions.

Reality

Retarded persons are just as much in control as others. Thus, a retarded person may act impulsively or irrationally just as other people do.

Myth

Retarded persons are mentally ill.

Reality

Retarded persons are slower intellectually but are otherwise like everyone else. Some have serious emotional problems, other experience occasional setbacks and a few are in very good emotional health.

Myth

Retarded persons are "eternal children".

Reality

Retarded persons do grow up. They develop adult needs, interests, and feelings. During adolescence and young adulthood, these needs and feelings may develop at a slower rate than those of their contemporaries.

Myth

Mentally retarded persons are totally dependent.

Reality

The vast majority of mentally retarded people are employable. They are capable of much, even total, independence. They may, however, need special training to achieve this independence.

THE EXPERIENCE OF BEING RETARDED

Our experiences affect how we act and react to the world around us. Many retarded people are reacting to a world in which they have overdosed on failure. Such failure experiences may contribute to a different outlook or perception of others. This difference does not make retarded people "odd".

Section One of this chapter will attempt to help you feel what it is like to be retarded, or to be considered retarded by others. It should help you acquire a better understanding of what to expect from a retarded person enrolled in your class.

Because of similar life experiences, many retarded persons display certain attitudes and behaviors. Any list of such behaviors will have to be general, because no retarded person owns all of these characteristics. Many, in fact, will display few of them. Thus, be very careful not to stereotype people who are retarded. What you are about to read has been the experience of several retarded persons, but not all to the same degree. Keep in mind also that any use of words such as "all" or "nobody" when describing people who are retarded does not do justice to the complex variety of people lumped together by these terms.

To find out what it is like to be retarded, we asked several retarded adults, all of whom went through high school programs and all of whom are employed. The following is a composite of how these individuals feel about being retarded:

1. When you travel, being retarded is...
   - spending the weekend in your apartment instead of going downtown because you are tired of hearing pepole on the bus talk about you as if you cannot hear them
   - walking two miles to work because you haven't learned to drive, and no bus service is available.
2. In the community, being retarded is...
   - having a hard time counting your change after you buy something
   - being afraid to challenge the phone company about being billed for long distance calls you didn't make
   - being proud of a summer job you finally got only to overhear your fellow workers call it "lousy work"
   - getting pressured by a magazine salesman into subscribing to a science journal when reading a cookbook gives you trouble, and being too embarrassed to tell anybody
   - feeling like you don't belong there when you go into a department store
   - being called Johnny or Joanie, Billie, Suzie and so forth, in the doctor's office when the other men and women are called "Mister", "Miss", "Ms.", or "Mrs."
   - being alone when you desperately want a friend.
3. With your family, being retarded can be...
   - having your mother pick out your clothes for school because she thinks you do a poor job at it
   - listening to members of your own family tell people how much they do for you

- being told something is for your own good, when it doesn't seem to be done by anyone else for their "own good"
- asking your folks why you are called retarded when you do lots of things well, except read.

4. In school, being retarded can mean many things...

- sitting in the back of the room
- sitting in the front of the room
- being introduced to the class when nobody else is introduced to the class
- being placed in a "dummy" group
- studying the same boring stuff four years in a row
- getting 4 directions at once and failing to catch the last two
- reporting on a project to the class and feeling fear grab the words in your throat before they can escape
- feeling a special glow when a teacher says you did well on something you knew you did well on
- feeling surprised when a teacher says he has confidence that you can do something
- being even more surprised when you actually do it
- feeling proud to be able to show somebody else, for a change, how to do something
- getting a real job where the boss doesn't yell at you if you mess up at the beginning.

Yes, being retarded means experiencing many unpleasant things: frustration, fear, humiliation, restriction, failure and loneliness. It means finding it difficult to learn like others do, or as easily as they do. But it also means finding pride in accomplishment when others show confidence in you, sustain you through your goofs and gaffs, and guide you to competence at a task.

Being retarded may also mean believing in the values of your middle class upbringing: a job, nice possessions, a home or apartment to call your own, and a family. It also means wondering how you can possibly achieve these when your money ends before the month does.

Being retarded may mean being stereotyped, pitied, or ridiculed by others. A retarded person may even frighten others. But retarded people have only one major characteristic in common: difficulty in learning.

A CASE STUDY

School, like other life experiences, can be pleasant or painful, productive or tedious, depending on the individual retarded student, the teachers he or she encounters, and the support given by other staff, parents, and peers. In order to understand how retarded students feel about school, consider the experience of one retarded person named Joe. His experience is unique, though too many other retarded people have had similar experiences. His story is also a good example of how not to mainstream a student who is retarded.

Joe's Experience

Let me tell you about the first full day of school this year. I'm a senior. I'm 20 years old. I've been told I'll get out and "be on my own" after this year.

6:00 A.M. My alarm goes off. I don't need it because I'm nervous. Scared stiff actually. I haven't seen my "ex. ed." (exceptional education) classmates since last May. "What will it be like?" I think. My hands are shaking so I cut myself shaving. (I put in a new blade so I could do an extra special job today, and I forget how sharp they are the first couple of times I use them.) I dress and hurry downstairs, still holding a tissue to my razor nicks. Mom is already up. "Joe, what are you doing wearing that light blue shirt with the green pants?" "Gee, Ma, I..." "No arguments, young man, just hurry up and put your dark blue pants on or you'll be late." Between the start of school and my run-in with Ma, I'm too nervous to eat any breakfast. I have three cups of coffee. I want to look wide awake for all the new teachers.

7:00 A.M. I dash out of the house and down to the bus stop. "Oh no, I forgot to get change for the bus." I run into the convenience store nearby and buy a paper. The clerk counts my change from a five dollar bill so fast I can't keep up. I try counting it as I am putting it away, but I don't want to look stupid, so I don't take the time to do it right. I sure hope she is honest.

7:15 A.M. The bus is at the stop. I jump on just as it is pulling away. I hear people near me whispering. Are they watching me? Are they talking about me? Do I look funny or something? How could they know?

7:40 A.M. The bus arrives at school. As I'm crossing the street I hear a whiny voice yelling "Haay reetard!" I don't even have to look. It's that Jones kid. Last year he'd holler at me every time he saw me. One day last spring, he threw pop in my face so I dumped him in a mud puddle. (I'm bigger and stronger than him.) The principal suspended me for three days. I tried to explain why I did it, but nobody seemed to pay much attention. Jones said I attacked him for no reason -- I tried to beat him up. Well, this time I'll pretend I don't hear him, and hope I can get to the building before he catches up to me.

7:45 A.M. There's Mr. Johnson. He was my teacher last year in the exceptional education room. He's a great guy, but I wish they didn't make such a big sign for the door -- everybody thinks we're weird if we go to class in there.

"Hello, Joe. How are you? Did you know the guidance department wants to see you first thing this morning? They are down by the principal's office. See you around, Joe."

I figured I better get down to this guiding department. Maybe I'll get a chance to tell them to make a smaller sign to guide people to the ex. ed. room.

8:00 A.M. I wait in the guidance office for 10 minutes. A nice lady asks me who I am, and tells me I'm supposed to see Mr. Pauli.

"Hellow, Joe, I'm Mr. Pauli. Is everything going okay today? I have a new schedule for you this year, Joe. You won't be in the ex. ed. room this term. Your mother and Mr. Johnson, you remember Mister Johnson don't you, and myself and some other people set up this nice schedule for you this year. Would you like to hear about it? You will be in with all other students this year. We call it mainstreaming. Here is your schedule. I've filled it out for you. If you have any questions, make an appointment with my secretary and I'll be happy to talk with you."

"Goodbye Mr. Pauli."

8:20 A.M. I'm late for my first period homeroom. The monitor yells at me for being late. I sit in the back and try to figure out what that "streamlining" schedule is. It says my next class is "English Basic". I wonder if that is the same as English. I don't think I can learn a foreign language. One is enough.

9:00 A.M. My first class. I don't mind telling you I'm scared to death. There must be two dozen other people in here. I check my hair and my clothes before class but people still sneak glances at me. I sit in the back on purpose. It's easier to watch the other people and copy what they do in case I don't get the instructions. It works pretty good most of the time. The only trouble was my book-- it looks different from the other students' books. Maybe that's why they look at me funny. I feel that this class will never end. All the coffee I drank at breakfast is making itself felt. But I'm too scared to ask about going to the rest room. The teacher frowns a lot and I don't want to make him mad at me.

10:00 A.M. Second class. This class has a lady teacher. She seems nice. She calls me by name. A couple of other people and I work with her separately. She tells us the class is about managing your money and skills for living. I'm not sure what they are, but it sounds good. I really want to be on my own some day. Funny though, she looks like she's in pain a lot. Maybe her feet hurt.

11:00 A.M. My third class is called "social problems". The teacher spends a lot of time talking about "communicating". She was a lady teacher also. She looks almost as young as us. I think she is as scared as I am. She has me come up to the front and sit near her desk. I drop my books as I sit down and everybody laughs, and I turn red, and so does my teacher. As the class goes on, the teacher fusses over me once in awhile. She sees what page I'm on, and asks if I know what's going on, and things like that. I don't know who's more relieved to get out of there-- her or me.

12:00 Lunch. This is easy. I run into some people I knew from last year and we eat together. It turns out that they are "streamlined" too. I think they're as scared as me, but none of us would admit it.

12:45 P.M. Fourth class. I'm feeling better after getting something to eat and finding out the other ex. ed. kids are "streamlined" too. The man teaching this class seems different from the others. He had us go to work stations after he explained what we would learn and why. We are in groups. He doesn't talk much, but he demonstrates what he wants done, and has us demonstrate back to him. I copy easy, and he tells me I do well. That makes me feel better. He says he will work with each of us during the week to see how we are doing. When it's my turn, he doesn't get upset if I do it wrong. We try again together, and then I try. It's funny, I didn't think I'd be able to do so much. I'm glad I got "streamlined" here.

1:45 P.M. Resource Room. This is my next stop. It's very busy, so I sit at a corner table and look at some magazines I find there.

2:30 P.M. After I run out of magazines, I decide to leave. Nobody seems to notice...

Joe's experiences are not typical of all retarded people, but are not that rare either. To help insure that retarded students are effectively and appropriately integrated into your courses, consider the following suggestions.

If you are a vocational teacher at the secondary level:

1. participate in the Individualized Educational Program (IEP) planning sessions. They will frequently be held toward the end of a given school year to set up plans for the coming school year.
2. contribute to the vocational aspect of the plan.

If you are a staff member of any type who is participating in IEP planning sessions:

1. insist that the student in question take part, if at all feasible. This will help lower the person's anxieties, especially during times of major change. It will also allow prospective instructors to meet the student, and vice versa. Plans can be developed jointly with the retarded person and explanations offered as needed.
2. involve the student's parents. Many parents are an untapped resource, and could contribute a great deal.

3. make sure that "skills of independent living" are included as needed in the program.
4. make sure vocational training that can lead to competitive employment is included in the program.

If you work in a postsecondary vocational school:

1. ask for a preenrollment career exploration/vocational assessment. This might be done in high school, for those who plan to attend postsecondary vocational school right after leaving high school. Others who may have been out of school for some time may need another format in which to do this.
2. insist (if it isn't already being done) that retarded and other special needs students have preenrollment contact with the vocational school staff, including prospective teachers. Both groups could become familiar with each other, and the special needs student could begin completing whatever "red tape" is needed for the admissions and financial aid processes. This might take the form of a 1/2-day or whole-day program and include tours of departments and class areas that prospective students would be using.

SUMMARY

In summary, you should understand that the Joes and Josephines of the world may have a home life where the parents are loving but overprotective. The parents may feel a bit ashamed of Joe when he is always so far behind the neighbors' kids. They then feel guilty about being ashamed. The parents of other Joes may not care if he wants to stay home and watch TV. They feel it is okay as long as he does not get into anything. Still others may regret the day their Joe was born, and make it clear he is not "really" a member of the family.

Joe, and his Josephine counterpart, often arrive at adulthood with many scars from what seems to be an endless battle for survival. He or she may see all adults as powerful people who must be placated. On the other hand, he or she may see authorities as people who try to push him or her around, who must be pushed back in self-defense. A retarded individual may have learned that letting people get too close might enable them to hurt you or that some people who talk nice can be really mean and take unfair advantage. This hurts a lot, and makes the individual suspicious. But overwhelming loneliness and desire to be a part of a group, sometimes any group, may drive him or her to seek out the attention of others, whatever the consequences.

Still other Joes and Josephines experience a warm and loving home life, and look up to teachers and others in authority. They usually respond well to attention and praise, but might become too dependent on those whom they admire.

In short, retarded people as a group are hard to describe accurately. Each individual is complex and unique. Many attitudes and behaviors may apply to a given group of people labeled "retarded" but no retarded person owns them all. Each retarded person has a unique personality, individual talents, and diverse characteristics.

In working with persons in class who are retarded, teach them, as you would all your students by:

- providing appropriate support, both instructional and emotional
- challenging them to increase their skills.

To do so you must care -- care that every Joe and Josephine succeed, care that they develop skills to survive, to work, and to take their places in society. Caring is crucial but not, of itself, sufficient. Even a caring teacher is more effective, for all students, when he or she is also a highly skilled instructor. Part Two of this chapter will examine those skills in more detail.

PART TWO

INSTRUCTING RETARDED STUDENTS IN THE REGULAR CLASSROOM

DEFINITIONS

Defining mental retardation isn't as simple as you might think. By defining someone you also indicate the assumptions you make about that person. These assumptions influence many of your professional choices about what to teach, why, how, or even if you will teach that person a particular skill or subject. For example, consider the following definitions, and the assumptions they contain.

Definition One

Mental retardation refers to "significantly sub-average general intellectual functioning existing concurrently with deficits in adaptive behavior, and manifested during the developmental period" (Grossman, 1973).

The following assumptions are implied by Definition One (Gold, 1975):

1. Retardation is a general phenomenon.
2. Intelligence, as defined by IQ tests, is permanent and general enough to describe how well a person functions.
3. Retardation exists in the individual and is not influenced by the context in which he or she exists.

All of these assumptions are very much open to question.

Definition Two

A retarded person is someone:

1. whose level of functioning requires significantly above-average training procedures and superior adaptive behavior from trainers and others working with that person.
2. who is characterized by the level of intervention, assistance, direction, and effort required for him or her to learn, and not by limitations on what he or she can learn.

3. whose maximum functioning is governed by the availability of training strategies and the amount of resources the school system and the community are willing to use, not by significant limitations in the person's biological potential (Gold, 1975).

The following assumptions are implied by Definition Two (Gold, 1975):

1. Mental retardation is not a general phenomenon. A person can be trained to a high level of skill on specific tasks, even though labeled retarded.
2. Intelligence, as defined by IQ tests, has little value in developing a training program or predicting success on a particular job.
3. No behavior clearly defines potential. If you make a prediction about a person, your prediction flows from the context that the person is in.
4. Development is lifelong.
5. Training, not testing, is the key to skill development.
6. Mental retardation can be noticed only by looking at the performance of individuals in relation to that of others in society.

THE IMPORTANCE OF COMMITMENT

Your personal definition of retardation and the assumptions it implies make a great difference. If you agree with the second definition and its underlying assumptions, you will find it much easeier to make a commitment to use the effort, resources, creativity, and teaching strategies necessary to train any given retarded person in what he or she needs to know. Regardless of which definition you use, YOUR PERSONAL TEACHING COMMITMENT IS THE KEY TO TEACHING RETARDED STUDENTS SUCCESSFULLY. Without it, all the professional skill, materials, resources, and support staff in the world will sit idle (Gold, 1976).

Whether or not you make such a commitment is governed in part by what you expect from retarded people. If you feel that they are not capable of doing much, you probably will not commit much energy, time or resources to train them in marketable skills. But, if you realize that a retarded person's performance is directly related to the amount of time, effort, and resources committed, and especially to the specific instructional strategies used, you probably will make a commitment to use the time, effort, and resources needed to help retarded students succeed.

The dramatic impact of such a commitment is illustrated in the following example (Gold, 1976):

> A trainer who had made the necessary value commitment, and who had learned specific training methods, decided to work with a group of "work activity" clients in a Chicago-area sheltered workshop. (The "work-activity" category is applied to people whom the Division of Vocational Rehabilitation has classified as incapable of ever doing productive work at a level of skill and quantity that would reach even fifty percent of industrial standards.) The group in question was assembling spring-loaded hinges. Their productivity was 15 percent of the industrial norm. (The factory which manufactured the hinge components provided the "industrial norm".) The trainer conducted a content task analysis (what to teach) and a process task analysis (how to teach it). He then trained these retarded people to assemble the hinges in a new way. After training, detailed records were kept for three months. During that period the average productivity of the trained group was 100 percent of the industrial norm. It fluctuated between 92 percent and 110 percent. Because this looked so impressive, even unbelievable, the staff decided to double check the industrial norms. A staff person went to the factory and calculated the rate of production by normal employees assembling the hinge. He found that these normal employees had an average productivity rating of 85 percent of the factory's original norm!

Thus, a commitment to use enough resources, time and energy, and the willingness to learn and use specific training approaches does make an enormous difference. It is also worth noting, as Gold does, that the specific industrial methods which a "special needs" student requires in order to learn will benefit all of your students.

CRITICAL ISSUES

Before looking at specific teaching techniques, there are some general, yet critical, issues which should be considered. Many are drawn from the work of Marc Gold. These issues apply to all teaching and learning situations.

Training vs. Exposure

How many courses have you waded through where the instructor lectured, assigned readings, and gave exams to see what you knew? Probably several. That style of teaching is not training. Someone using it assumes that students exposed to the material will "absorb" it -- that is, understand it, integrate it into their cognitive, emotional and behavioral systems, and apply it appropriately. This approach assumes that the students will learn "on their own". Retarded people are not efficient, effective learners. They do not learn well through such exposure to the material. Retarded people must be trained. Training, or teaching in the strict sense, means to create or arrange an environment so that it can be manipulated systematically in a way that allows the effects to be measured and recorded (Gold, 1973). If you can't specify:

1. the criterion of success
2. the conditions under which it is to occur
3. the way you will measure this performance
4. how you will teach the student

you are not training. Nor are you teaching in the strict sense. A "normal" person can learn in spite of the method used. A retarded person will not. All will learn more quickly and easily if you train them.

Learning vs. Performance

Most of us are swift and efficient learners. We acquire new skills, retain facts, or assimilate information rapidly. Most students learn in this way also. When we encounter some who do not, we are often frustrated by their agonizing difficulty and lack of rapid progress. We may even wish they were not in our class. Because retarded people are characterized by difficulty in learning, and by the amount of time, resources, and training strategies they needed to learn, we must not allow ourselves to give up when they do not assimilate new learning to which they are exposed. To avoid becoming frustrated and discouraged, we must remember that learning a skill is one process, and performing it after learning is a different process. (Because we learn rapidly, we often fail to realize how different learning and performing really are.) The retarded student may need much practice and many trial runs during training, but after learning a skill the retarded person can perform it at acceptable levels of quality and speed.

Evaluation vs. Training

In recent years, vocational assessment has become much more elaborate. Various federal and state laws mandate or recommend it for rehabilitative, educational, or other vocationally related services. Private corporations have developed vocational assessment systems that they claim are effective. But effective assessment depends on determining and implementing the goals of the assessment process. Assessment should:

1. help the student explore vocational areas and assist him or her in making career choices
2. help the teacher determine what skills the student already possesses
3. determine what learning approaches are best suited to the student or are necessary for the student to learn at all
4. determine how well the student can perform a new skill or skills learned during assessment, and under what conditions this performance has taken place
5. provide direction for further programming, and offer precise suggestions concerning specific skills to be developed.

If vocational evaluation is not a part of training, if it provides no useful information about how to train effectively and what to train, if its major contribution is to make only general suggestions such as the "student should check his work more often," or "the instructor should monitor the students progress and provide more feedback," then that evaluation is inadequate, if not entirely worthless.

Evaluation must be directly related to training. After training begins, evaluation should provide feedback to the instructor on the effectiveness of training up to that point, and guidance in altering the training strategies used.

Many Steps vs. Abstract Judgments

In training retarded persons, it is important to distinguish between the number of steps required to do a task and the type of judgments, necessary for correct performance. A skill may require a number of steps. If these steps can be subdivided and arranged into teachable components, they can be used in training retarded persons. But if a skill requires several abstract judgments it may be harder to divide into teachable components. For example, the process of re-lining brakes contains many steps. But within these steps are many specific tasks and sub-tasks which are straightforward and require either/or decisions. Someone who finds learning difficult could learn to re-line brakes if he or she received appropriate instruction.

An example of a task which demands many abstract judgments would be "writing a book review". This skill demands a large number of abstract judgments and therefore would be difficult to analyze into teachable components.

Two Levels of Discrimination In Perception

Take a moment to study the following problem: Place an (x) over the figure in the group shown which matches this one ▲.

▲ ● ■ △ ● □

Of course, the correct response is easy. But you used at least two major steps to arrive at that answer:

1. you picked out the correct category by determining relevant dimensions (i.e. the triangle-shaped figures)
2. then you selected the correct figure within the "triangle" category--the shaded one.

A retarded student has difficulty learning and does not automatically solve new problems systematically. You may need to teach him or her to look for the relevant dimensions, to choose the right category and then to pick out the proper item in that category.

The Difference Between What You Teach and How You Teach

Write-ups of various vocational training programs often contain a description of:

- the facilities housing the program
- the equipment and materials used
- the staffing pattern, class size and administrative structure
- a description of topics covered.

What is much more rare is a detailed breakdown of how this material is taught--how one starts, the methods of presentation used, how feedback is given, how progress is monitored, and how the class as a whole is managed. Only this information is directly related to training. The program descriptors outlined above are organizational and administrative components. Thus, it is possible to have a detailed organizational structure and a comprehensive list of tasks to be taught, and still not know what to do when a retarded student does not learn like everyone else does.

INSTRUCTIONAL TECHNIQUES, OR "HOW DO I BEGIN?"

Instructional techniques for training retarded students begin with planning. This planning should occur both before and immediately after first contact with the student.

The first step in planning is to realize that the rate of learning for most individuals depends on their habits or strategies of selective attention, coding, and rehearsal of task properties (Schworm & Abelseth, 1978). Thus your overall strategy in writing instructional plans and using various instructional techniques is to help the student to focus selectively on the right information, retain it in an orderly way in his or her memory, and apply what he or she learned.

The second step in planning is to answer the following questions:

1. What are your expectations for retarded students who enroll in your program? This includes your expectations about:

    - promptness (how late is "late"?)
    - extent and type of class participation
    - how you will be addressed
    - what types of behavior and language are acceptable
    - what types are not.

    Be aware also if any preconceived notions you may have about individuals (retarded or not) because:

    - they match or vary from your standards of acceptable personal appearance
    - their cultural background is different from yours
    - you taught their relatives or siblings previously.

2. How much deviation from these expectations will you tolerate before taking action?
3. What will you do when your tolerance level is exceeded?
4. What will you do if your first action doesn't work?
5. What skills must be taught to make the student employable?
6. Why does the person need to learn each of these skills? (If you cannot give a good answer for each skill, consider dropping it.)
7. How do you intend to teach each skill?
8. How will you know whether or not the student is learning the skill, or has learned it? Criteria include the quality of performance, the rate, and situational issues such as performing satisfactorily across different locales, materials, and forms of direction. You should also find

out whether or not the student will perform without being told to or watched by an authority figure.

9. What instructional materials do you intend to use?

The third step is to determine whether or not you need more information to answer some of these questions. Additional sources of information include the student's former instructors and parents, and the files. If still more information is needed you may refer the student for a formal assessment or develop your own informal assessment. (See Chapter IX, "Vocational Assessment", for details on the assessment process.)

Because the answers to questions 1-6 depend on your personality, the skills you teach, the employment picture in your area, and the individual retarded student, we will not discuss them in detail here. Questions 7-9 deal with ways you can help your retarded students focus on relevant material, code it meaningfully in memory, and perform it successfully on the job as well as in class. To help answer these questions, we will address the following topics in the remainder of this section:

- task analysis
- communicating with the retarded student
- skill building
- class management
- employment considerations.

TASK ANALYSIS

You probably already know a lot about task analysis so the basics will not be repeated here. The key point that must be stressed is that when you analyze tasks, analyze not only the content (what must be done by the student to complete the task) but also the process you will use to teach. All too often, task analysis guides omit any mention of steps to be taken by the instructor and concentrate exclusively on what must be done by the student. Figure One (Beebe, 1978) illustrates an analysis which looks at process variables.

Figure One

Task Analysis for Cutting Out a Square of Fabric

Purpose: For the student to be able to cut out a 4-inch square that has been traced on a piece of fabric. This task analysis is designed for use in a class or shop where patchwork products are made. The scissors are designed so the student's middle, ring, and little fingers all fit comfortably in the larger loop.

Criterion: Shall be reached when the student correctly (without error or assistance) cuts out six squares of fabric. "Correctly" means that the fabric has been cut evenly along the traced lines.

Pre-requisite Skills: The student will enter with the following behaviors:

1. Be able to grasp with all fingers on one hand (hand one is the hand used to hold scissors).
2. Have enough eyesight to see the traced line on the fabric.
3. Be able to make a pincer grasp with hand two.
4. Be able to apply enough pressure with one hand to force scissors blades together.

Material and Tools needed:

one pair sharp scissors
one large piece of fabric with 4 inch squares traced on it.

Content Task Analysis

1. Lay fabric flat on table - traced side up.
2. Lay scissor to one side of fabric, small loop closest to fabric. (If the trainee will use the scissors with his or her right hand, put them on that side of the fabric.)
3. Move scissors so both loops are over edge of table.

4. Insert middle, ring and little fingers of hand 1 half way up to knuckles.
5. Insert thumb of hand 1 into smaller hole as far as it will go.
6. Curl index finger of hand 1 outside of large loop where loop and scissors handle meet.
7. Make pincer grasp with thumb and index finger of hand 1, grasp with middle, ring and little fingers of hand 1.
8. Lift scissors off table.
9. Release pincer grasp - one hand wide.
10. Hold scissors with thumb pointing directly down.
11. Place four fingers of hand 2 on center of square.
12. Press with fingers of hand 2 to hold fabric tightly.
13. Insert blade of scissors closest to table underneath edge of fabric which is closest to edge of table.
14. Allowing blade to rest on table, move scissors forward so that the traced line to be cut is directly in line with the V made by open scissor blades.
15. Simultaneously, apply pressure with thumb and fingers of hand 1, and make pincer grasp with thumb and index finger of hand 1.
16. Release pincer grasp to open blades.
17. Move scissors into uncut portion of fabric, keeping V in line with traced line.
18. Repeat steps 15 through 17 until the corner of the traced square is reached.
19. Turn fabric by simultaneously pressing on fabric with fingers of hand 2 and turning elbow of hand 2 out to right angle with body, keeping wrist rigid.
20. Release pressure on fabric.
21. Return elbow to close to body.
22. Place fingers of hand 2 back to center of fabric square.
23. Repeat steps 15 through 22 until total square is cut.
24. Lay scissors flat on table.

Process Task Analysis

Format - This task is taught using the total task method.

Feedback - Minimum verbal feedback - squeeze shoulder when performing incorrectly; immediately correct by physical manipulation. Student will view the finished square, will compare his or hers to sample.

Procedure

This task is taught with the trainer standing behind the student. This allows for minimal distraction. The trainer will physically manipulate the fingers of the student through the steps of the total task. The trainer will use a minimum amount of verbal feedback - using words like "good" or "other hand" where appropriate. The trainer will assist the student in performing the task until the student is able to perform independently. Criterion is reached when the student is able to cut six squares correctly with no assistance.

This analysis assumes that the student cannot perform very many entering behaviors. Notice how detailed the tasks are. Many retarded students will not need such a detailed breakdown in order to learn new skills. But, if they fail to learn a particular part of a skill, check to see if they know less than you assumed they did.

If the student has difficulty, you could reanalyze your approach to teaching (the process task analysis), or divide the difficult steps of the content task analysis into smaller parts. Keep in mind that learning and performing are different processes. The goal is to teach new skills, not just rearrange existing ones.

Monitoring Your Assumptions

It is important not to make too many assumptions about what the student knows. Some of the most widely used task analyses books make a large number of assumptions about what a student already knows or already can do. Figure Two below provides an example.

Figure Two

Nursing Assistance Occupation Task: Making An Occupied Bed

Task Component To Be Performed	Implied Assumptions
1. Wash hands.	a. knows where sink facilities are or knows whom to ask for directions
2. Collect necessary supplies and stack linen in order.	a. knows where linen supply closet or cart is b. knows whether to bring linens to patient room on cart or remove what is needed and leave cart where is c. knows the "order" in which to stack the linens for use
3. Provide for patient's privacy.	a. understands why privacy must be provided b. understands what "provide privacy" means, (put up screen, shut door, draw curtain, etc.)
4. Describe procedure to patient.	a. understands why it is necessary to inform patient of procedure b. knows how to describe procedure and use proper tact and tone of voice
5. Position bed in high, flat position, if allowed.	a. knows how to determine whether or not flat position is allowable, or knows who to ask b. understands how to use bed raising/lowering mechanism and how to manipulate various bed positions, using buttons or crank
6. Put side rail up.	a. knows what side rails are for and where to locate them b. knows how to physically manipulate and secure side rails
7. Move patient to one side of bed.	a. understands regulatory method of moving patients in bed b. can use judgment regarding movement (depending on nature of illness)

Task Component To Be Performed	Implied Assumptions
	c. knows how to move signal cord, I.V., catheter, etc. if necessary without entanglement or dislodgement d. knows how to deal with situation if patient refuses to be moved
8. Remove foundation linens.	a. understands what constitutes the "foundation" linens and how to remove them
9. Make the foundation of the bed.	a. understands exactly what "making the foundation" means and which linens to use to accomplish this
10. Put side rail up.	a. see #6
11. Move patient to clean side of bed.	a. see #7
12. Position pillow under patient.	a. understands what correct position the pillow should be
13. Move to the other side of the bed, lower side rail, pull dirty linen through.	a. understands and can use mechanism to lower side b. can perform technique of pulling clean and dirty linen through without confusing the two sets of linen
14. Re-position patient.	a. can remember original position in which patient was found b. knows what positions not to put patient in depending on illness or condition c. can tactfully deal with patient who wants to be put in a position he or she should not be in
15. Place top linens over patient pulling dirty top layer out underneath clean top linens.	a. understands and can perform technique
16. Miter bottom corners to make pleat.	a. has mastered technique of mitering corners b. understands why toe pleats are made
17. Change pillow case by gathering clean case down to corners and pulling up over pillows.	a. understands and can perform technique

Task Component To Be Performed	Implied Assumptions
18. Place pillow in comfortable position, with attention to good body alignment.	a. can judge when pillow is in proper position even if patient is unconscious b. understands what constitutes good body alignment
19. Attach signal cord.	a. knows how and where to attach signal cord for easy patient access
20. Adjust side rails.	a. see #6a
21. Return bed to low position.	a. see #5b
22. Remove soiled linen.	a. knows what precautions to take for soiled linen b. knows where to dispose of soiled linen or who to ask for directions
23. Wash hands.	a. see #1a

Task components were drawn from: J.D. Oliver, D.W. Lee, and P. King: A Catalog of Performance Objectives, Criterion-Referenced Measures and Performance Guides for Nursing Assistance Occupations: Consortium of States, 1976.

You can see from this example that errors could result from assuming the person possessed an "entering behavior" or "prior knowledge" which, in fact, she or he did not. It should also be evident that appropriate training could be included, if necessary, to correct these false assumptions. The best approach is to base all your assumptions on observed performance. If you see the student perform, you can assume he or she can do the task. If the student expresses a working knowledge of something, then you can assume he or she knows it. The following example illustrates what can happen if you do not.

A janitorial trainee had successfully completed the program and was placed on a job. When the instructor followed up the student's progress, his supervisor said, "Charlie is doing fine except for one thing. When he finishes cleaning the floor, he leaves the bucket and mop in the hall instead of putting it in the proper closet."

The instructor had assumed the student would remember where to store the cleaning equipment after being told. To solve the problem, the instructor suggested drawing a silouette of the bucket and mop on the floor of the correct storage closet, showing the new employee the closet and the drawings, and telling him to put his mop and pail on the silouettes when he finished. The supervisor followed this suggestion and the problem was corrected.

Screening Standard Task Analysis Lists

If you use commercially prepared or other standard lists of task analyses, you could assess their potential usefulness in teaching students who are retarded by answering the following questions:

1. Are the tasks stated behaviorally?
2. How many assumptions does each one make about the level of knowledge and skill already possessed by the trainee?
3. Does the analysis provide information about the tools, procedures, materials, conditions, or other variables which affect job performance?
4. Are there quantitative or qualitative measures to determine when the task is successfully completed?
5. Is information which may affect the learning sequence provided? (This would include the frequency with which an employee must perform the tasks, the relative importance of specific tasks, and the learning difficulty of the tasks.)
6. Has the task analysis package been judged by workers in the occupation and by their supervisors? Has it been evaluated by an advisory committee? Or has it simply been put together by one person without feedback from others? (Fraser and others, 1976).

If you have never developed a task analysis or used it as part of your teaching, what has been presented here may not be very clear. If this is the case you could review any of several good books and articles on the topic, or you could check with others in your school who are familiar with this process.

COMMUNICATING WITH RETARDED STUDENTS

Repetition

When talking with retarded students, BE CONCRETE AND REPEAT information. In communicating your expectations, use plain, direct statements. BE SPECIFIC. Repeat as needed. Let the student know what you want in terms of effort, attendance, class etiquette, and so forth. Do not be misled by "yes" answers if you ask the student "Do you understand?" Many times a retarded person wants to please you, and may even feel he or she does understand. Instead of relying on a "yes" or "no" answer, have the person repeat the necessary information back to you, or show you what must be done. Do not assume the retarded person knows what you want without checking to be sure. Do not assume that the student's objectives in taking the course are the same as you have in teaching it. Specify your goals, and find out what he or she expects from your course. Don't be surprised if you repeat yourself more often than you used to, but don't get discouraged. Once the retarded person does acquire information or skill, he or she can be a very good performer.

In the beginning, effective communication with retarded students will require more concentration and effort on your part. The "concrete" and "repeat" characteristics of your communication should always be in your awareness until they become habitual. Once they become a habit, you will do both with little or no effort and without even being fully aware of doing so.

Directions

A second aspect of communicating with retarded students is giving them directions. To do so effectively, consider the following suggestions:

1. Use lists instead of paragraphs for written directions. For example, many recipes are hard to follow because

complex directions are compressed into a short paragraph. Figure Three below illustrates a more effective format which was developed by Lehman and Richter (n.d.).

Figure Three

Recipe Model

A. Recipe Name
B. Cooking Temperature
C. Cooking Time
D. Number of Servings

E. Ingredients
F. Steps to Follow
    _ 1. __________
    _ 2. __________
    _ 3. __________

The student could check off each part after completing it to help him or her avoid missing steps.

2. Edit the vocabulary level of the materials as needed.
3. Use the same words for the same directions, until the student knows what to do. (If you give the same directions in four different ways when the retarded student is still learning what to do, your directions may sound like four different requests, and be very confusing.)
4. Teach equivalent forms of the same directions. ("When I tell you to...it is the same as when I say...")
5. Have the student show you that he or she knows what you want.
6. Print directions on the board instead of writing them in script. A poor reader has great difficulty reading script, even if it is clear and neat.

The Student Who Can Barely Read

If the student's reading level is a major problem, contact the special needs coordinator, remedial reading staff, special educator, support teacher, tutor, or Adult Basic Education Department (whomever is most appropriate in your setting) and arrange reading instruction. This instruction should focus on the reading used in your course, especially that which is vital to know in order to be employed.

A second potential solution is illustrated in Figure Four below. It shows a work assignment sheet for a nonreader that was developed by Ms. Roberta Hoppe of Fox Valley Technical Institute, Oshkosh, Wisconsin. The sheet is taught to the nonreading retarded student enrolled in Ms. Hoppe's janitorial training program. The student first learns to associate each picture with the actual object. Then, when being assigned work, he or she would clean those objects circled on his or her worksheet. Ms. Hoppe found that this method overcame the trainees' reading difficulties and allowed them to receive different directions for different rooms or areas as the need arose.

Feedback

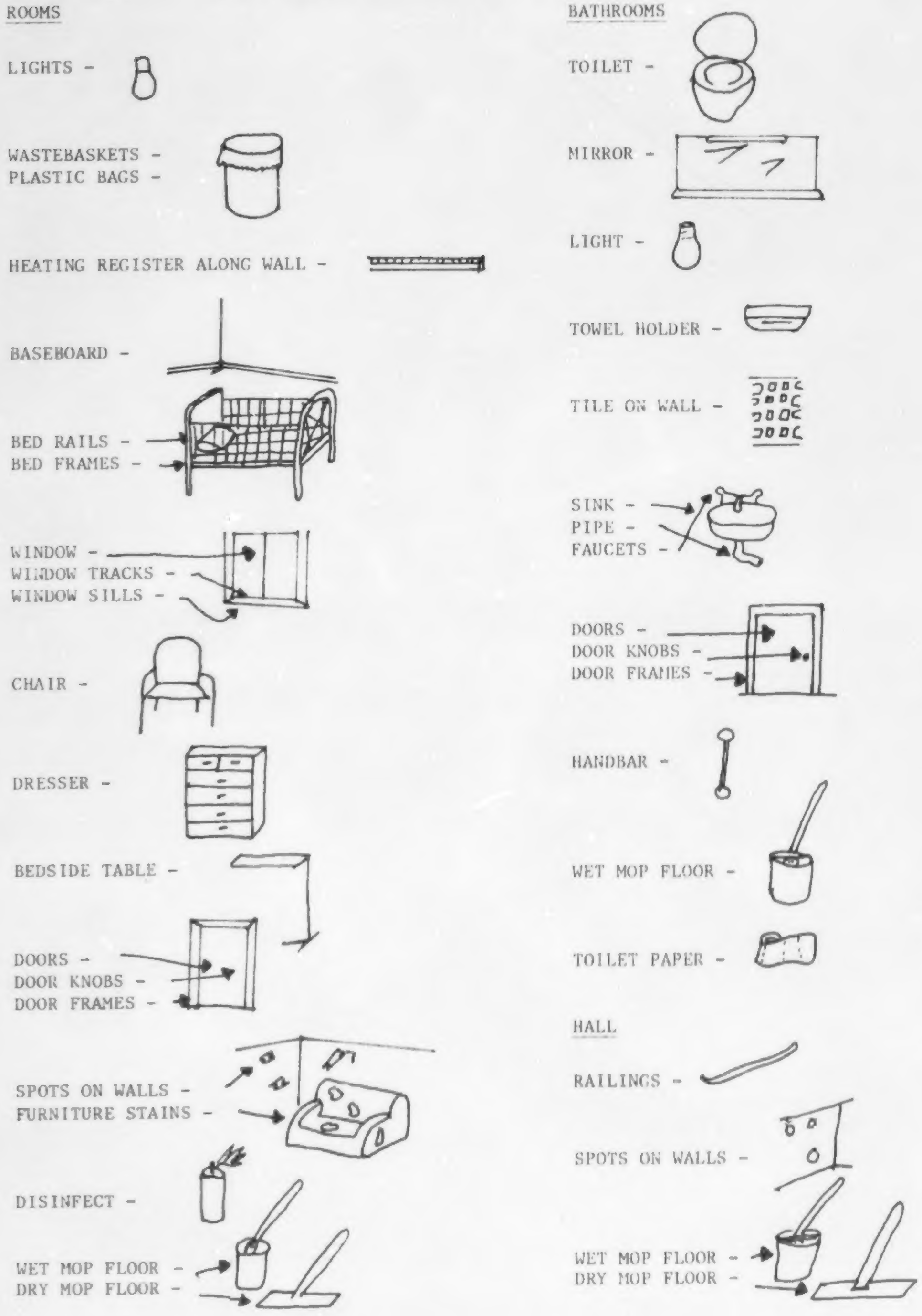
The third aspect of communicating with retarded students is providing feedback to them about their progress. Feedback can be verbal or nonverbal. It can come from the instructor or the task itself. It can be immediate or delayed. All feedback has one major purpose: LET THE LEARNER KNOW WHAT IS WANTED, AND WHETHER OR NOT HE OR SHE IS ACHIEVING IT. You can provide feedback before, during or after a single act or event, or a series of acts or events.

Feedback is very important. Many retarded persons have found education to be an unpleasant experience. Often, feedback received by these students told them that they are unworthy, inadequate failures. As an instructor, you are a very important source of feedback. During initial learning of new skills, you may have to provide feedback on each subskill, and provide it immediately. "Immediately" does not mean several hours or days later. It means just as the task is completed. As the competence of the student increases, and his or her successes increase, the amount of necessary feedback will decrease.

Although precise, timely feedback is crucial to training retarded students, overuse of verbal feedback, especially the word "good", can drive you and everybody within earshot crazy. In addition, overuse can lead to ineffectiveness. While more feedback is needed at the start of the learning process, not all of it needs to be verbal. Both types can

Figure Four

HOUSEKEEPING ASSIGNMENT SHEET



ROOMS

LIGHTS -

WASTEBASKETS -
PLASTIC BAGS -

HEATING REGISTER ALONG WALL -

BASEBOARD -

BED RAILS -
BED FRAMES -

WINDOW -
WINDOW TRACKS -
WINDOW SILLS -

CHAIR -

DRESSER -

BEDSIDE TABLE -

DOORS -
DOOR KNOBS -
DOOR FRAMES -

SPOTS ON WALLS -
FURNITURE STAINS -

DISINFECT -

WET MOP FLOOR -
DRY MOP FLOOR -

BATHROOMS

TOILET -

MIRROR -

LIGHT -

TOWEL HOLDER -

TILE ON WALL -

SINK -
PIPE -
FAUCETS -

DOORS -
DOOR KNOBS -
DOOR FRAMES -

HANDBAR -

WET MOP FLOOR -

TOILET PAPER -

HALL

RAILINGS -

SPOTS ON WALLS -

WET MOP FLOOR -
DRY MOP FLOOR -

be tapered off as the learner grows in skill and confidence, and learns to get feedback from the task itself.

Until then, however, you could also use substitutes for the word "good". Figure Five illustrates a list of substitutes developed by Kubany (n.d.).

Figure Five

Substitutes For The Word "Good"

That's really nice
Thank you very much
Wow!
That's great
I like the way you're working
Keep up the good work
That's quite an improvement
Much better
Keep it up
Good job
What neat work
You really outdid yourself today
Congratulations, You got __ right!
That's right! Good for you
Terrific
I bet you are proud of the job you did on this
Beautiful
I'm very proud of the way you worked (are working) today
Excellent work
I appreciate your help
Very good. Why don't you show the class?
Marvelous
Right on
Fantastic
All right!
Teach me (or__) how to do that
For sure
Sharp
That looks like it's going to be a great report
I like the way ___ is working
My goodness, how impressive!
You're on the right track now.
That's "A" Work
__ got right down to work
__ is paying attention
It looks like you put a lot of work into this
That's clever
Very creative
Very interesting
Good thinking
That's an interesting way of looking at it
Now you've figured it out
Thank you for (sitting down, being quiet, getting right to work, etc.)
Superior work
That's a good point
That's a very good observation
That certainly is one way of looking at it
That's an interesting point of view
Thank you for raising your hand, Charles. What is it?
That's the right answer
Now you've got the hang of it
Exactly right
Nice going
You've got it now
You make it look easy
That's coming along nicely
I like the way the class has settled down

Although many teachers don't give enough appropriate feedback, it is possible to give too much verbal reinforcement. A great deal of verbal feedback may make the student too dependent on you. It also may make it harder for the student to do well in work settings where frequent verbal feedback is rare. In addition, verbal feedback can be misused. If you swamp the student with talk, even if you are trying to be reinforcing and helpful, you may confuse him or her, cause frustration, and make the training experience unpleasant and unproductive. The best verbal feedback is usually a short, direct statement that describes the student's performance or calls attention to specific aspects of the task.

Nonverbal feedback is also very helpful. Nonverbal feedback includes:

- touching the student, or the task
- pointing
- blocking or stopping an error as it is developing
- guiding the learners movements
- holding the learner's hands or fingers in the correct position until he or she begins to do it independently
- manipulating the learner's hands through the steps of a process
- squeezing his or her arm to indicate an incorrect movement is beginning.

Such "hands on" feedback gives the student information which he or she can use for self-correction as training progresses. Another type of essentially nonverbal feedback, used effectively by Marc Gold, is the phrase "try another way." Use of this phrase can help the student develop a decision making and problem solving orientation. By asking the student to try another way you also imply that you are confident the learner can try another way.

In the course of designing vocational training techniques for retarded persons, Gold has also developed some general "rules of training". He doesn't view them as being the only rules, nor does he feel they all apply in every situation. He has found, however, that these rules can improve the effectiveness of training for any student who finds it hard to learn. His "rules" include the following:

1. Rule of non-interference When someone is paying attention to what you want, provide feedback that does not require him or her to stop attending to the task and start attending to you. Do not take the student's attention away from the task in order to give feedback.
2. Rule of inconspicuous feedback When you must interfere with a behavior that you believe the person is doing to get attention, interfere in a way that appears to be unintentional.
3. Rule of diminishing feedback Each time you correct an error which has been made before, provide enough information to correct the error but less information than the last time.
4. Rule of self-correction
    - allow self-correction only when you think the student will learn more from completing the mistake than from catching it before completion.
    - when these conditions cannot be met, provide feedback after a decision has been made by the student but before it has been acted upon.
5. Rule of reinforcement The best reinforcers are those that are already part of the student's environment.

In developing your own ways to provide feedback, do not overlook some common, but effective, approaches. These include:

- timers The student times and records his or her output. He or she could use an alarm clock or automatic timer. During later sessions, the student tries to beat his or her previous output.
- graphs or charts These could be used with the timer or alone to record increases in desirable behaviors or decreases in undesirable ones. If the student is recording his or her own progress, a simple, colorful graph or chart is recommended.
- videotape Records of the student in work or training settings provide powerful feedback on student interaction with fellow students and with you. Videotape can also be used to show the student how well he or she pays attention to the tasks at hand. Use videotape only if the entire class is

willing. It may be better to provide feedback in a one-to-one setting. Often, the retarded student will be surprised at how well he or she does in addition to learning about the areas which need improvement. Be sure to point out the appropriate aspects of the student's performance as they are illustrated on the videotape.

SKILL BUILDING

Many retarded students will not learn every aspect of a vocational area, so you may have to emphasize sets of skills which could lead to specific jobs. Even though the retarded student will need certain unique skills to succeed in your vocational area there is also a set of skills which apply not only there but to most everyday situations. The following section will provide some suggestions about developing these skills:

1. Self-confidence/self-esteem/self-concept
2. Observation/attention
3. Retention/memory
4. Generalizing
5. Problem solving

Self-confidence/self-esteem/self-concept

While not a "skill", self-confidence and self-esteem influence the retarded student's behavior so much that it would be misleading to talk about skill development without mentioning them.

A person's self-concept (Charles, 1976) is the sum total of:

1. what he or she believes is true about himself or herself
2. the value he or she places on those beliefs, individually and totally.

To understand where these beliefs and values come from, consider the following quotation (Charles, 1976, pp. 192-193):

What we believe to be true about ourselves comes from our perceptions of what we do and what we are like, relative to others, and from feedback others give us. All of us perceive a great many things about ourselves. We perceive aspects of our physical beings such as size, strength, speed, coordination, and appearance. We perceive character traits such as dependability and courage....We have perceptions about the degree to which we are accepted by others, including people in general, people with whom we have close personal relations, and people who hold positions of power over us. We have notions about our ability to perform, whether it be performance in general or performance on specific tasks. We perceive ourselves as relatively successful or unsuccessful, and our efforts as recognized, or not recognized. The perception categories mentioned here are but a few of the many that are important in our lives. And each of these categories is a composite of numerous specific impressions.

The second part of the self-concept has to do with the value we place on whatever qualities we do perceive -- that is, with whether we consider them to be poor, mediocre, or good. This part indicates how we feel about ourselves. This feeling determines whether we have a good, positive self-concept, or a poor, negative self-concept. Our feelings about the qualities we perceive in ourselves seldom take the form of extreme conscious pleasure or displeasure. They are more like a general satisfaction or a general dissatisfaction with the trait. These satisfactions and dissatisfactions determine whether, and to what extent, we are able to accept ourselves.

Self-concept is not a single factor that can be expressed with numerical precision.... The self-concept consists of numerous discrete perception--evaluations. Some of these assume great importance to us. Others assume little. This degree of importance depends in large measure on the value attached to the perceived trait by other significant people--people who are important in our lives. For example, size and strength might be very important factors in the concept of a male teenager, whereas being a good speaker might be relatively

> inconsequential. But these two factors might well be reversed when that boy becomes an adult....When we look for discrete factors that have importance in overall self-concepts, we find little consistency. Important factors vary from person to person, time to time, place to place. But if we reduce discrete factors into certain kinds of categories, then those categories seem to be fairly stable for different people in different places and times. For example, the strength factor and the conversation factor might both fit into a category of 'ability to do' - to do things important in life.

Self-concept and the degree to which one values and likes oneself (self-esteem) are based on:

1. the expectations and feedback of others
2. the individual's expectations, past achievement, and assessment of that achievement.

Many retarded students have experienced much failure. This failure, the negative feedback that often comes with it, and the self-evaluations it fosters, often create a poor self-concept and poor self-esteem in a retarded student. Because of this, many retarded people lack belief and confidence in their own worth and ability. The following suggestions can help you influence the self-esteem, self-concept and confidence of all your students.

1. Encourage them to believe that they can improve.
2. Reexamine your expectations of what each student can do. An over-estimate may cause despair. An under-estimate of their potential leads to feelings of helplessness and frustration. You should also expect your systematic instructional efforts to make a difference in how well the retarded students learn.
3. Use activities that will assure success, especially in the beginning. Like everyone else, retarded persons do not like to fail. But these students often learn that increased effort accomplishes nothing. Thus, the best way to avoid unpleasant failure situations is not to start at all, or to try a little and quit when things get hard. Some retarded students have never learned the value of sustained and concentrated efforts, because a token effort and poor results were tolerated and accepted. A "support and

challenge" approach allows you to support their efforts and successes, and challenge them to improve still more.

4. Assign special tasks which show the student that the teacher has confidence in him or her and which help make the student feel important (Colton, 1978).
5. Recognize even small signs of progress by verbal statements which give immediate feedback. Display good work. Have the student show projects to someone he or she admires -- parents, principal, janitor, fellow student -- or send a note to his or her parents. Avoid calling on the student when the probability of failure is high (Colton, 1978).
6. Give the student a chance to correct work and hand in a good project (Colton, 1978).
7. Do not use labels that destroy self-esteem. For example, if you tell a student to use his "good" hand, what are you implying about the other one?
8. Provide specific feedback on work. For example, say "This piece was cut exactly the right size", or "You put these two parts together right. Please take this one out and try another way."

Observation/Attention

To learn something quickly and correctly the retarded student must pay attention. A retarded student, like everyone else, will be paying attention to something, but unless you structure that situation effectively, he or she may not pay attention to anything important. Because many retarded students have problems making correct discriminations, they may have a hard time learning marketable skills. Many aspects of training involve learning discrimination skills. These skills enable a student to know when to perform motions involved in various tasks, when to use certain materials or tools, and how to recognize the criteria for successful performance.

In discussing discrimination Bellamy and others (1979) state:

> To discriminate between two objects means that the worker responds differently as a function of differences between the objects. Much training simply involves teaching the worker which differences are relevant....A worker who looks at, feels, smells, hears

> or touches several stimuli and responds differentially to them is considered to have the skill of discriminating.

Often, a retarded student must learn to distinguish between "tight enough", "loose" and "too tight". Or between "clean enough", "too dirty", and "very clean". Or between different choices, depending on the information available: "If it sounds, smells, or looks like...your saw blade is dull. You need another...ask for a new one...turn it in to be sharpened."

Match To Sample

One technique to develop student's skill in discriminating is the "match to sample" technique in which you provide an example and a range of choices. The student chooses from the alternatives, based on the characteristics of the sample.

During this process, the person discriminating between a range of possibilities follows a two step process: 1) discriminating between dimensions, and 2) discriminating among levels of the relevant dimension. Any characteristic of an object or event could be relevant (height, weight, position, color, shape, size, or function). Each object or bit of information has many different dimensions. Some will apply to the vocational decision at hand. Some will not. The student's first discrimination task is to identify the dimension(s) that is relevant under a particular set of circumstances. The student's second discrimination task is to identify the level(s) within the relevant dimensions to which he or she should respond (Bellamy and others, 1979).

Bellamy, Horner and Inman (1979) found that tasks in which a worker repeatedly makes discrimination errors are usually ones in which identification of relevant stimulus dimensions and levels is difficult. These authors describe situations which cause such difficulty, and suggest approaches to overcome the problems.

Minimal Differences Between Stimuli

Present the choices in an easy form first. Exaggerate attributes if necessary. Make the choices gradually harder. Add and then fade out color cues, add and then gradually remove large cue differences, or combine these two approaches. The combination approach is usually the most effective. To implement this solution:

- Make the relevant characteristic stand out with examples from extreme ends of the choice range or with different colors.
- Make changes so that relevant characteristics are substantially different from the other characteristics.
- Gradually reduce (fade out) the added features as soon as the student responds reliably and correctly.
- Use some type of feedback when the student performs correctly.

Either/or Discriminations Along a Continuous Dimension

Often the student must mentally divide a continuous dimension into two categories such as hot or cold, big or little, tight or loose, smooth or rough, accepted or rejected. When performing the task the student must determine when an object or situation fits into one category or another. Either/or discriminations along a continuous dimension require the same type of two-step process as other discriminations. To help students determine which dimensions are relevant and whether a specific example fits in one or the other category of that dimension, consider the following suggestions (Bellamy et. al., 1979):

- Early in training, teach the relevant dimension by using examples from the extreme ends of the continuum.
- Once a student responds to the relevant dimension, teach the critical boundary within that dimension by using positive and negative instances that become more similar to the cutoff point (Bellamy and others, 1979).

Multiple Choice

Often several factors must be considered simultaneously in order to choose correctly among alternatives. For example, do wires get connected on the basis of color, shape of terminal, thickness of the wire, or a combination of these and other factors? In teaching students to make correct decisions based on several factors, the following suggestions (Bellamy et. al., 1979) could help:

- present the student with examples which require the response in question and examples which do not.
- all examples requiring a certain response should possess *all* relevant levels of *all* relevant dimensions (for example, blue wire, threaded connectors, 14 gauge thickness). Examples which do not require the actions being learned should have *some* or *none* of the relevant levels of the relevant dimensions.
- vary the *irrelevant* dimensions of positive examples.
- teach the positive levels of relevant dimensions *one at a time* by presenting examples that vary along the relevant dimension. "To teach a worker the positive levels of the relevant dimension, present examples that vary along the relevant dimension and only reinforce correct responses to appropriate levels. Hold all levels of other relevant dimensions constant until performance is accurate, then vary another relevant dimension." (Bellamy and others, 1979)

Sometimes a student must make a decision without verbal or sound cues. For example, how tight is "tight" on the drain plug of an oil pan?

To improve feedback to the student:

- alter the task or the equipment used. For example, a torque wrench could be used until the student associates the "feel" of the proper tightness with a given reading of the pressure exerted.
- place your hand over the student's hands when he or she is performing actions that require feedback so that you can

gauge how well he or she is doing. Provide feedback accordingly.

There are several additional ways which you could use to help improve the students selective attention/observation skills:

1. Use concrete, relevant examples to teach important variables such as height, weight, shape, and color. For example, you could use a series of welded seams of various quality levels to enhance the student's ability to distinguish between acceptable, unexceptable, and excellent work. In graphic arts, you could use a series of photos to show what happens if a mistake is made at a particular step in the processing sequence.
2. Provide accurate, specific feedback, such as, "Your project is good because the seams are even, the button holes are spaced the same distance from each other and the correct distance from the edge of the garment."
3. Make sure that you yourself are very clear on:
    - the distinctive steps or subskills that distinguish one task from another, and
    - unchangeable steps or subskills which would result in incomplete performance if they were left out (Schworm and Abelseth, 1978).
4. Minimize:
    - irrelevant information, so that only essential steps and subskills are included in the original learning of a task
    - relevant dimensions, if possible, so that the lowest number of essential variables are included in the original learning of the task (Schworm and Abelseth, 1978).
5. Relate variations in task sequence to specific conditions demanding those changes, as in teaching the student who is sanding furniture to recognize when it is time to change to a finer sandpaper. (Refer back to the section on teaching either/or discriminations.)

There are other general strategies which could also help:

- Be sure your materials are at a suitable level of difficulty - neither too hard nor too easy.
- Make sure students clear their work areas of materials not related to the task at hand.
- Keep unstructured time to a minimum. Most retarded students like clear structure and specific schedules. If left totally on their own, they may become anxious, or begin irrelevant activities.
- Be sure everyone has a clear view of what is being shown or demonstrated.
- Use visual aids such as flipcharts or overhead projector materials that are direct, uncluttered, and visible from a distance.

Retention/Memory

There are three key factors to retaining information:

1. Learning it precisely and correctly the first time
2. Practicing and reviewing to the point of overlearning
3. Applying the skills/information in contexts which are meaningful.

To help your students remember what they learn:

1. Be systematic and present one new piece of learning at at time. Do not teach unknown concepts using new or unfamiliar skills.
2. Relate new material to familiar material, and keep it practical and concrete.
3. Utilize training techniques such as:
    - the total task method
    - chaining
    - modeling/demonstrating
    - the structured overview.

Retarded students have a hard time learning. They need specific training if they are to succeed. However, these methods can be used successfully with all your students. If certain units or tasks give many students trouble, you may help all of them by using some of these suggested methods.

Total Task Method

In this approach, the student completes one entire cycle of the task before beginning a second. The trainer should stand beside or just behind the student so he or she can give proper verbal and nonverbal feedback. This method is well suited to the use of nonverbal feedback and the "try another way" statement. To start, you may have to set up the materials and equipment in the correct sequence. The assembly of a carburetor might be one task where this method could be used. The goal of this method is correct performance of all steps in the sequence without errors or assistance. The criterion which indicates such learning has occured is arbitrary. You set it. It might be ten correct performances in a row without error or help. As the retarded student meets your criterion, his or her accomplishment will clearly illustrate the difference between learning and performing.

As part of the total task method, it might be helpful to include "in use" and "not in use" positions for all relevant equipment (Gold, 1976). Thus, the person learns to arrange the work environment suitably before beginning, and to maintain that arrangement as equipment is used and set down again. The sequence might also include training the student to clean his or her hands or the parts to be used. Do not assume the retarded student will recognize the importance of something so "obvious" as wiping grease or soap from his or her hands before moving to the next step in a sequence.

Chaining

This can be done either "forward" or "backward". In forward chaining the student attempts the first step (or first few steps) in a sequence and receives feedback about his or her performance until he or she reaches a success criterion. Additional step or steps are then added to the process. The student always starts at the beginning during each learning trial and progresses through all new steps. Additional steps are added until the entire task is complete, and the student achieves the established criterion.

Backward chaining occurs when the beginning steps of a sequence are already completed by you. The student performs only the last step (or steps) while receiving feedback. As he or she achieves mastery of this portion of the task, additional steps farther up the sequence are added. Backward chaining can be effective if used systematically and with proper feedback. It might be used to instruct someone in the operation of a lathe. Initially, you or another student would set up the work, and the retarded student would complete only the last steps to create a finished product. You could then systematically help the student back through earlier steps, including set-up.

Modeling/Demonstrating

This can be effective in helping retarded students learn new skills without a great deal of unguided "trial and error". Modeling can be done by you, by other students, or by using audiovisual recordings of someone performing the operation. The students can even serve as their own models if you use videotape to provide feedback on their performance.

In presenting the skill to be learned:

1. leave out all but essential details until these are learned.
2. go slow enough for the students you are instructing. What seems slow to you may be incredibly rapid to them.
3. divide the steps into small groups, or single units if necessary, and demonstrate only one at a time.
4. use a sequence which allows the student to practice and allows you to give feedback. A suggested sequence is your demonstration, guided student trials (physically manipulate his or her hands if necessary), and your immediate feedback on performance. Repeat as needed. As some students succeed, have them demonstrate to others while you provide supportive, immediate feedback. Proceed to the next series of steps. When using forward chaining or backward chaining, have the students repeat the previous steps as well as the newer ones.

5. do not forget to use different contexts, materials, tools, and so forth to help the students generalize.
6. vary the amount that you model as the student's skill and confidence improve. You may do a complete demonstration at first, later a partial demonstration. The student would be expected to do a complete demonstration every time.

Structured Overview

This method can be used not only for new learning, but also for practice in solving problems, independent practice, and review. It can be used to sort categories, to make associations, or to learn steps in a sequence.

The technique involves putting written information and/or pictures on cards. For example, the steps involved in frying an egg, making cookies, or starting an engine could be determined, and each step written on a separate card. These cards are numbered on the back in correct sequence. Pictures of technical equipment and the correct name for each piece could be placed on separate cards. The cards could be laminated to reduce wear. The students then matches cards and items. The structured overview cards could be made more complex by developing several branches of related information or color coding different parts of a process. A sample set could be used by advanced students to make additional sets dealing with other tasks. Retarded students and others needing review could use the completed sets.

Generalizing

"Generalizing" means applying what has been learned:

- in different contexts (i.e. using similar tools, different materials, different locations)
- after the passage of time
- after learning and performing other skills
- as a result of receiving different forms of the same direction from various sources (written, supervisory or whatever).

To insure that generalizing occurs, the following ideas can be helpful:

- Use examples from different relevant contexts.
- Practice in settings similar to or exactly like those that will be encountered on the job. Do not do this haphazardly. Set up a plan which presents a sequence of situations that vary gradually from one another and from the initial classroom situation. Do not forget to add the usual distractions (especially noise) that are likely to occur in the work environment.
- Teach different but equivalent ways to give directions or do a task. Be sure the students realize that, while the teacher uses one method, the new boss may have a different way. And the boss will be the one to decide which is used.
- Vary the order of tasks already learned if such variation is likely to occur on the job.

Problem Solving

One consequence of growing up in a protective environment is that a person does not become skilled at solving problems. Some retarded students either do not know how to begin analyzing a problem, or impulsively do anything plausible in order to relieve their anxiety about the issue. If they are "lucky" they may hit upon a solution.

Strategies to improve their problem solving skills include the following:

1. Demonstrate the steps involved in defining a problem, analyzing choices, choosing and implementing the choice, and evaluating results.
2. Explain why you did what you did.
3. Teach the criteria you used when solving specific problems. Refer back to the "discrimination" techniques described earlier.
4. Use the "try another way" method to help develop a problem solving orientation.

5. Build in clues about how to start, practice in solving problems, and review of problem solving skills.

The following sample lesson plan on teaching problem solving skills provides some practical suggestions for implementing these strategies.

Figure Six

Training in Problem-Solving Skills

Student Objectives

1. The student will be introduced to systematic problem-solving techniques.
2. The student will practice those techniques.

Instructor Preparation:

- review the literature on problem solving techniques. Suggested sources include these:
  - Mager, R.F., and Pipe, P. Analyzing Performance Problems. Belmont, California: Fearon Publishers, 1970.
  - Carkhuff, R. The Art of Problem Solving. Amherst, Massachusetts: Human Resources Development Press, 1973.
  - Bradford, L.P., Stock, D., and Horwitz, M. How to diagnose group problems. In: Group Development. Washington, DC: National Training Laboratories, 1961.
- develop videotape or audiotaped situations to be used during class which show a variety of practical situations that would require prompt, effective decision making. These situations might be filmed: a) with no solution given to solve the problem; b) with one suggested solution to the problem.

Student Preparation: None

Class Activities

1. Explain the purpose of the lesson: learning practical methods to solve problems.
2. Present and discuss a systematic method of confronting and solving problems which might arise on the job.
3. Illustrate this systematic method using examples such as an airplane pilot developing "engine trouble" in a simulator, or a driver education

student viewing films of incidences on the road which would require immediate problem solving responses as part of a simulation.

4. Present the videotaped situations (which you have prepared) to individual students or teams of students and have them use the problem solving methods discussed.
5. Allow ample time for discussion of alternative solutions.
6. Discussion of the individual situations may be opened up to the class after the individual or team of students attempts to solve the problem.

Suggested examples for use on videotape or audiotape:

I. A pharmacy technician, working in a drugstore, receives a barely-audible telephone call. The caller was in the drugstore a short time before to get a prescription filled. Now he states that he has taken some of the medication and is feeling extremely ill. (STOP)

II. A nursing assistant walks into a patient's room to assist her with her bath. She notices immediately that the patient is lying at an unusual angle in bed and appears to be unconscious. (STOP)

III. An occupational therapy assistant working in a psychiatric ward walks into the craft room to begin an afternoon class. Sitting on the floor in the corner is a patient who is holding a piece of broken bottle against his throat. When the patient sees the assistant he begins yelling and threatens to commit suicide. (STOP)

Follow-up Activity

1. Homework assignments requiring students to develop new situations and the steps they would follow in solving the problems involved.

CLASS MANAGEMENT

You may be confronted with a situation which requires you to teach someone who has difficulty learning while simultaneously instructing fifteen to twenty others. To cope, you will need effective classroom management strategies. Five factors that affect classroom management are:

1. your expertise in your vocational area
2. your methods of instructional delivery
3. your sensitivity to your students as individuals
4. your expectations about your students potential for learning

5. the actual mechanics of managing a group of people in their efforts to achieve various vocational goals.

Ideas which may be helpful in the actual mechanics of class management include:

- behavioral contracts
- team teaching
- record keeping
- tutoring
- testing
- grading

Behavioral Contracts

One type of behavioral contract is used in "contingency management" to develop desirable personal and social behaviors in a student and to eliminate undesirable ones. We don't believe you should attempt to develop such contracts on your own. If a student "acts out" a lot, and your usual approach hasn't been effective, consult other professionals on your staff. Help may be found in student services, the special education department or the special needs department, depending on your school's structure and resources. Contingency management can be effective in teaching difficult students new personal and social skills, but is most effective when done as part of a unified effort among all the student's teachers, supportive staff, the individual student, and the student's parents.

A second type of "behavioral contract" can be set up jointly by you and a student to help focus his or her vocational goals and specify the tasks which must be achieved to reach them. This type of behavioral contract can also help the student learn to evaluate himself or herself more accurately, and develop a sense of responsibility and control of his or her vocational success. The focus of the contract is determined jointly by the teacher and the student. A given contract's time span is determined in the same way. Figure Seven below is an example of a

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1-79

Figure Seven

FOX VALLEY TECHNICAL INSTITUTE
HOME & CONSUMER SCIENCES DIVISION

MULTI-OCCUPATIONAL AIDE
Behavior Contract

Objective(s): To develop personal characteristics/traits with substantial progress as indicated by both student and instructor.

Student: ______________________________ Date: __________

Counselor: ____________________ Instructor: ______________

Instructions:

1) The student/instructor are to identify criteria below (1-16), which needs improvement and place an X in the appropriate box. This X will indicate desired level to be achieved.
2) The student/instructor will jointly assess the current level of behavior. This will be indicated by an 0 in the appropriate box.
3) The student/instructor will jointly assess the progress through individual meetings weekly.
4) The completion of the Behavior Contract will be completed upon reaching the desired achievement in (1) above and maintained as per the instructor and/or counselors approval.

Introduced	Exposed	Slightly Involved	Moderately Involved	Competent-Employable (Low Productivity)	Competent-Employable (High Productivity)	Proficiency (considerable)	Proficiency (high)
	0	1	2	3	4	5	6
N/A	N/A	N/A	N/A	C	B	B+	A

Item	Criteria									Student Rating	Instr. Rating	Final Rating
1.	Acceptance and discharge of responsibilities											
2.	Assimilation of training and supervision											
3.	Ability to plan and organize the work											
4.	Quality of the work done											
5.	Attitude toward work											
6.	Ability to get along with others											
7.	Punctuality and attendance											
8.	Judgment											
9.	Dependability											
10.	Ability to act on own initiative											
11.	Industry and effort											
12.	Emotional stability											
13.	Ability to express self and explain											
14.	Aggressiveness and forcefulness											
15.	Maturity, Poise and Self-confidence											
16.	Personal appearance, grooming											
17.	Others ____________ ____________________											
18.	Others ____________ ____________________											

behavioral contract which has been used successfully by Ms. Roberta Hoppe with retarded students at the postsecondary level.

Team Teaching

Team teaching has been used effectively for some time at the secondary level. A special educator and vocational educator teach a vocational course together. Implementing such an approach involves the commitment of all concerned. It also demands curiosity, patience, persistence, enthusiasm, imagination, intellectual honesty, and a desire to improve teaching skills.

According to the publication called Employ the team teaching approach, (p. 6) team teaching demands that:

- two or more teachers plan, instruct, and evaluate cooperatively
- teachers are assigned a large block of time during which they can schedule activities
- teachers have a common planning period each day
- teachers have aides or assistants to help with nonteaching duties
- teachers divide responsibilities so that all teachers are operating in their areas of strength and interest
- instruction involves groups of various sizes and composition, and various time limits depending on the purpose of the activity
- a variety of audiovisual materials and aids is used
- teachers cooperatively and continuously evaluate their own performances

There are at least two broad general styles of team teaching:

1. A hierarchical team This type has a designated leader. The leader has the ultimate responsibility to guide the team and make decisions (Employ the team teaching approach, 1977).
2. A cooperative team This type has no designated leader. All members share the leadership and decision making responsibilities

equally. Members may take turns being informal leaders, or they can lead in their areas of expertise or share the leadership.

Questions which must be answered when planning sessions (Employ the team teaching approach, 1977) include these:

1. What are the initial program objectives and unit objectives?
2. What are the weekly lesson objectives?
3. What lesson content is to be presented?
4. Which content is to be presented by large group presentation?
5. What methods and aids will be used to present that content?
6. Who will make the large group presentation?
7. What will be done during the small group meetings?
8. How will the small groups be organized?
9. What blocks of time will be assigned to large group, small group, and individualized/independent study?
10. How could the previous day's effort have been improved?
11. What specific problems have arisen with particular students and how can these problems be solved?
12. Who will work with particular small groups?
13. What types of individual instruction or independent study will be used with particular students?
14. How will the students be evaluated?

If you wish to try a team approach, the experience of educators in Georgia might be of interest to you. During the 1978-79 school year, special educators and vocational educators in Georgia determined an effective way to set up and implement team teaching. Among many things they developed is a list of suggestions about how the vocational instructor and special educator could work together:

1. Communicate frequently when scheduling handicapped youngsters into vocational programs.
2. Jointly select new materials to supplement those used in regular vocational programs.
3. Schedule meetings on handicapped youngsters (IEP staffings, etc.) based upon mutual convenience.
4. Allow handicapped students to explore vocational programs before enrollment and, once enrolled, to proceed at an individual pace.

5. Increase vocational instructors' awareness of the handicapped through:
    - mini-workshops
    - successful placements
    - using successful vocational teachers as teacher trainers.
6. Increase special education instructors' awareness of regular vocational program content.
7. Share instructional materials and equipment.
8. Insure joint availability of special education and vocational education on a non-restrictive basis.
9. Share information on students' instructional strengths and weaknesses.
10. Assist each other in placing students on jobs once a saleable skill or skills have been mastered.

Record Keeping

Accurate records provide you with feedback about the results of your efforts, help you to monitor each student's progress, and enable you to plan for each student systematically. The system you use will vary according to your style, your goals, and your needs.

Two examples of record keeping systems which are used for very different purposes are provided. The first example, Figure Eight (Western Curriculum Coordination Center, n.d.), shows a group progress report, and the various ways to use it. It packs much information into a small space, yet remains clear and easy to interpret.

The second example, Figure Nine (Kutschenreuter, Tushinski, and Nelson, n.d.), is used in a program to teach grooming skills to retarded students. Notice that the record sheet lists the sequence of tasks used in teaching "tooth brushing". The record sheet, if filled in properly, can pinpoint sources of error, which could then be addressed specifically.

Figure Eight
Group Progress Report

COURSE: Metal Trades
HOUR: 3rd. & 4th. Period
GRADE: Senior Level

NO.	Name	Cut Threads on a Lathe	Keyways and Stopcuts on a Shaper	Operate A Surface Grinding Machine	
1.	Edward Batten				
2.	Hoyt Burnard				

Some teachers merely record a check mark in the space at the time the topic is covered. . . . .

Others draw a diagonal line in the space when the student is present for instruction . . . .

Fill in the top corner when the skill is mastered, ...

and either the final grade received, ...

or the points earned, are placed in the bottom triangle. . . . . .

Some teachers desire even more information, so they divide the space into four parts. . . . .

When the student starts the topic, the date is placed in the upper left-hand corner. . . . .

When the topic is mastered, the date is placed in the upper right-hand corner. . . . .

Qualitative points are recorded in the lower left-hand corner. . . . .

A grade which indicates the level of effort is placed in the lower right-hand corner. . . . .

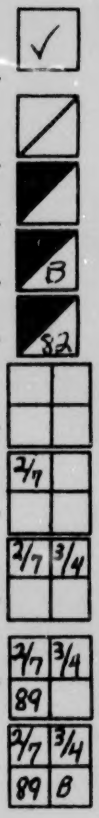


Figure Nine

Performance Test - Unit I

OBSERVER'S RECORD SHEET

On ______________________ ______________________
(Date) (Name

performed as indicated given the following verbal prompt.

> "Brush your teeth. The toothpaste and toothbrush are on the counter."

Task - Toothbrushing	Accomplished	Not Accomplished	Comments
Obtain materials. (toothbrush, toothpaste)			
Pick up utensils. (toothbrush, toothpaste)			
Remove cap from toothpaste.			
Put toothpaste on toothbrush.			
Set down toothpaste.			
Wet toothbrush.			
Transfer toothbrush.			
Begin brushing.			
Fill glass.			
Rinse mouth.			
Empty glass.			
Rinse toothbrush.			
Return supplies.			
Turn off water.			
Replace cover on toothpaste.			

Tutoring

Tutoring can be done by other students (peer tutoring) or by staff members. In asking another student to show a retarded student how to do a task, try to get the cooperation of a top student, but one who is sensitive to the retarded person as an individual.

You may want to select a peer tutor who works in a conventional, systematic way, rather than someone who uses a unique approach or combines steps.

Tutoring can also be provided by other staff. The following factors seem to play a key role in the functioning of the tutoring program at Vocational, Technical and Adult Education District One, Eau Claire, Wisconsin. These points are not intended to describe an entire tutoring program, nor how one would be established. (The tutorial program in this postsecondary vocational technical institute is staffed by a special needs coordinator, two professional tutors, and a student services special needs counselor.)

1. Both tutors spent several hours per week in the vocational labs of courses in which retarded students were enrolled. A great amount of time was required until each tutor learned the key skills being taught in those courses.
2. The tutors communicated frequently with both student and teacher, and did so in person, not by memo or telephone. (This frequent "in person" communication is probably one of the main reasons District One's tutorial support program is effective.)
3. The tutorial staff talked with all students in the labs, and were willing to help any student, not just those identified as having "special needs". This eliminated other students' jealousy and fears of favoritism. It seemed to prevent retarded and other special needs students being shunned or ridiculed. They were accepted totally by the other students. It turned out that "normal" students who asked for and received assistance really needed the help.
4. The tutorial staff addressed problems which might lead to crises and withdrawal from school. They provided support when the retarded person looked for housing, dealt with the phone company, sought financial

aid, and, experienced problems in finance management, nutrition and other skills of independent living.

5. The special needs staff checked the reasons for absences immediately, including visiting the home if necessary.

The tutors also worked on academic problems with the retarded students in the following ways:

1. Tutors supervise extra practice sessions in lab work during nonlab time. It was for this purpose that the support teachers spent time learning the particular vocational skills taught. The greatest need of most of the retarded students was additional structured practice.
2. The tutors read and interpreted exams to the retarded students. These included safety texts, quizzes, and final exams. If the exam was an essay, the tutor would read each question and record the student's verbal response. In other cases, the tutor would edit the student's written answers for spelling, capitalization, and punctuation. If a part was unclear, the tutor would ask the student what it meant, and would record the response on the answer sheet. Instructors would allow tutors to take as much time as needed to help a student complete the test.
3. The retarded students hand assignments in to the tutor a day early. This gives the tutor an opportunity to point out good work as well as areas which need more attention. This is done as part of a scheduled "tutoring group" of special needs students. Other students wishing to receive help may also attend.
4. Tutors follow up on student questions immediately.
5. Written material is tape recorded for a student if needed.

The student services special needs counselor at District One provides services to a total of 324 students, 22 of whom are retarded (1979-1980 school-year figures). Certain services the counselor provides seem to be important to the success of retarded and other special needs students at District One. The counselor:

1. informs all instructors in a confidential way, through their department supervisors, of all retarded and special needs students enrolled in their courses
2. provides more detailed information to any instructor upon request
3. develops resources for students - financial aid, housing, medical, psychotherapy
4. counsels students concerning personal problems which might hinder academic performance

5. communicates with instructors, other staff, and students in person.

Testing

If you use "hands on" competency based student evaluations you will probably be able to continue using them with few or no changes. In designing evaluation procedures:

1. assess the reading level of any written material.
2. minimize matching tests. These instruments, with several questions and long lists of possible choices, are confusing for many retarded people. They tend to spend much unnecessary time looking at each item in the choice list when trying to answer a question. Multiple choice questions, or even fill-in-the-blank questions, are preferred. The latter should be used only if the retarded person's study program was intense and structured.
3. use practice tests to help retarded students who are very anxious.
4. develop study guides for student use.
5. while "hands on" tests are best, oral testing may be an appropriate choice in some situations.
6. be certain your directions are clear and understood.

Grading

A "trials to criterion" grading system is preferred. In using this method, you set a standard of performance based on your experience. For example, on task A you may feel that anyone who can do it six times in a row without error or assistance has mastered it. For task B, you may feel that only those who can perform it 20 times in a row with no error or help have truly mastered it. This approach is compatible with competency-based instruction, and provides the most accurate description of what the retarded student can do, and under what circumstances.

If traditional grades are required, the grading system should:

1. be based on each student's performance rather than comparison to group norms
2. reflect the competencies developed by each student
3. include provisions for reporting effort and progress as well as achievement

4. reflect quality and quantity of work
5. be comprehensible to the students and their parents
6. provide for student involvement in determining his or her own achievements.

EMPLOYMENT CONSIDERATIONS

The ultimate goal of all vocational training for retarded students is, of course, employment. Many programs describe the establishment and operation of work study/work experience programs, job seeking skills training programs, and job placement strategies.

Some of these are listed in the "additional resources" section of this chapter. If you are involved a great deal in working with work/study coordinators or in job placement of your retarded students you may wish to review them.

A key objective which has not received as much attention is helping retarded students keep their jobs once they get hired. Three basic problems often lead to loss of jobs for retarded persons: problems with supervisors, problems with coworkers, and poor quality and quantity of work performance. For some individuals, absenteeism and tardiness may also cause problems.

As long as the student is in your program, you influence the student's progress in all of these areas.

A prime consideration in communicating with the employer of your retarded graduate is the orientation process for both the employer and the graduate. The following approach is suggested by The President's Committee on Employment of the Handicapped and the National Association for Retarded Citizens in their Guide to job placement of mentally retarded workers (n.d.).

When a qualified mentally retarded worker is hired, the employee should have an early opportunity to meet his coworkers as well as his foreman or supervisor. Sometimes introductions can be made during the initial job interview. The new worker should also have enough time during the first few days on the job to become oriented to new surroundings.

Specific issues should also be clarified during this orientation process. Figure Ten below portrays a checklist (McCarthy, 1974) which describes them.

Figure Ten

Checklist for Induction and Orientation of the New Employee

___ Who is his or her immediate supervisor?

___ Who can he or she go to for help if he cannot find his or her supervisor?

___ What department, unit, or division does he or she work in?

___ Has the new employee reviewed his or her job description with the supervisor?

___ How does his or her work fit into the total operation of his or her department?

___ Has the new employee learned where he or she works (location of the facility and location of job site within the facility)?

___ Does the new employee know the starting time, lunch, break times and quitting times?

___ Does the new worker know what is expected in terms of work standards?

___ Does the new worker understand the probationary period and its implications?

___ Does the new worker know what clothing is appropriate for the job?

___ Does the new employee know where the lunch rooms, rest rooms, vending machines, smoking rooms, cafeteria and lunch counter are located?

___ Does the new employee know where to park (if relevant)?

___ Has the new employee learned whom to call, how to call them if a problem develops and he or she expects to be absent or late?

___ Does the new employee understand about pay periods (when they are, whether or not the first one is withheld so that pay is always 2 or 4 weeks behind, etc.).

___ Does the new employee know all relevant safety practices?

___ Have emergency procedures been discussed with the new employee?

___ Does the new worker know where bulletin boards are, how to use the information on them, or even how to read them?

___ Has the new worker been informed about regulations about receiving or making phone calls?

___ Does the new employee need any keys or other equipment? Has he or she received them?

His or her immediate supervisor should be briefed on issues that might relate to the worker's job performance. For example, you may wish to explain to the supervisor that the new worker will respond best to orders if they are given one at a time. Also, the supervisor should be reasonably certain the retarded worker understands the orders. If in doubt, the supervisor need merely ask the new worker, "Now tell me what it is that you're supposed to do."

All new employees are anxious those first few days on a job. The new employee has a lot to learn all at once. He or she needs to know the location of the work station, his or her locker, and the time clock. He or she must be shown the restrooms, the cafeteria or lunch area, and other facilities. The new worker meets many people the first days on the job -- boss, foreman or immediate supervisor, coworkers, others. He or she may not recall all their names. He or she may not be able to find everything without asking. All this is expected -- it happens to everyone during the first days on the job.

The new worker needs enough time to become oriented to people, places, and things. Employers who recognize this at the time of original placement avoid unnecessary problems.

The worker may be shy at first. This shyness will taper off as he or she begins to feel more comfortable at work, and gains acceptance by coworkers.

It will be easier for everyone if fellow employees are cordial and neighborly, but not necessarily too friendly or over helpful.

It may also be necessary in the beginning to make sure that the worker knows what to do after he or she completes an assigned task. He or she needs to know whom to ask for new work, and whom to see should a problem arise.

Job Instructions

Giving proper instructions to a retarded worker can be crucial to his or her success on the job. The following suggestions might help:

1. Explain what needs to be done. Tell the worker clearly what he or she is expected to do. Use simple, specific language.
2. Show the worker how to do the things that must be done. Let him or her see the exact steps he or she must take.
3. Ask him or her to do the task, while you observe.
4. Review what the worker has done. Correct any mistakes. Gradually let the worker be more and more on his own.
5. Taper off. Spot check his or her performance. When the worker does a good job, tell him so.

Hazards

Tell the worker where employees are permitted to be and where they are not.

Be sure the mentally retarded worker understands signs such as EXIT, ENTRANCE, IN, OUT, FIREBOX, WET PAINT, DANGER, KEEP OUT, STAY BACK, and DO NOT TOUCH. Let the new employee know where to go if injured on the job. Inform the worker what to do and whom to see.

Work Rules and Benefits

The mentally retarded worker should be told what to do if he or she feels unable to come to work one day -- whom to call, what time to call, and so on.

The new employee should be informed of any company hospitalization or insurance plans or other benefits. The vacation schedule, paid holidays, and other job features should be explained.

Potential Problems

1. The new worker reports for work far too early.

   To handle this problem, tell the worker exactly what time to report to work. Explain that although reporting early is admirable, it is not expected. Relieve any fear that he or she may lose the job if he or she does not come to work very early.

2. The mentally retarded worker does not eat lunch with the other workers. He or she takes his breaks in solitude. Others notice and single the individual out as "different".

Usually, this situation resolves itself within the first few months. Generally, another worker befriends the retarded person or vice versa. This initial act of friendship helps to break down barriers and leads to acceptance.

But do not be surprised if the retarded person does not become friendly with more than one person or a few. On the surface he or she may appear to be withdrawn and this tends to inhibit others from initiating friendly overtures. But the fact may be that the worker merely needs longer to warm up to others.

3. A mentally retarded worker has been assigned a specific work station, or locker. There is reason to change the work station or locker. Since most retarded persons feel comfortable with an unchanging routine pattern of work activities, the retarded person facing a change might be apprehensive about a new situation.

   All that is usually needed is to explain why the change is being made. Then give the mentally retarded worker time to learn the new job procedure or the new locker location. Unless someone explains the reason for the change the worker may think that the change is due to dissatisfaction with his or her performance. Always explain.

4. The mentally retarded person has been doing excellent work. The issue of promotion arises.

   Promotion should be considered carefully. If the retarded worker can function properly in the new job, promote him. It is simply a matter of selecting the best worker for that particular job.

SUMMARY

Characteristics

First and foremost, be alert for stereotyping students who are retarded. Realize also that one approach will not work equally well with all students. Many of your students who are retarded will face problems in the following areas (Richter, 1980):

1. difficulty in assessing themselves, what they are able to do, how others perceive them, and difficulty dealing with success or failure

2. difficulty managing their time and resources, but reluctant to ask for help until a crisis develops
3. dependence on your directions
4. possible difficulty when working in groups unless carefully structured - the student may end up doing only menial tasks, or may try to boss others around inappropriately
5. difficulty learning the skills being taught - a student may say he or she "won't" do it when, in reality, the student cannot do it, or thinks he or she cannot do it.

Programming

When developing your program, make sure that the following questions are addressed (Williams, Brown and Certo, 1975):

1. What skills do you want the student to learn and perform?
2. Why do you want the student to perform each of these skills?
3. How will you teach the student to perform each of these skills?
4. How can you verify empirically that the desired skill is being or has been taught?
5. Can the student perform the newly learned skills at a situationally acceptable rate?
6. What instructional materials will you use to teach the student to acquire and perform a skill?
7. Can the student perform the skill across:
    - persons
    - places
    - instructional and job related materials
    - language cues and instructions?
8. Can the student perform the skills without directions or orders from someone in authority?

Instruction

A summary of important instructional considerations is provided by Smith (1978, p. 61). Instruction should be:

1. Organized. Review the instructional plan. Are the steps of instruction logical? Do they clearly follow each other? Is later instruction based on material already learned?
2. Specific. The student needs to know exactly what to do and may not be able to see obvious connections unless they are pointed out.
3. Visual. Whenever possible the teacher should demonstrate what must be done using films, slides, drawings, and simple charts and diagrams as aids.
4. Divided into small steps. Instruction should be presented in small increments with time for practice.
5. Repeated and checked. The teacher should check often to see whether the student can demonstrate understanding of each task.
6. Overlearned. Time should be allowed for overlearning. The teacher should check periodically to make sure the student remembers important operations and should encourage practice.
7. Reinforced. The student needs praise for work accomplished, no matter how small the task. It should be clear that new assignments are the result of satisfactory performance.

PART THREE

EXAMPLES OF MODIFIED CURRICULA

INTRODUCTION

At the secondary level, curricula designed for retarded students should enable them to develop vocational and personal independence to the greatest extent possible. A good curriculum should exhibit the following characteristics (Cegelka, 1978):

1. It should be based on at least one sound learning theory.
2. Individual learning objectives should specify skill areas, industrial methods, performance criteria, and evaluation methodology.
3. These general performance objectives should be broken down into specific steps needed to attain the desired skill.
4. All objectives should include provisions for frequent monitoring and evaluation of instructional tactics and student performance.
5. Any curriculum using the unit approach should also contain objectives and subobjectives.
6. There should be evidence that activity sequences were developed carefully and correctly.
7. Objectives should be short-range and concrete.
8. The curriculum guide should be designed so that frequent feedback to the student is built into its structure.
9. The guide should include a table of contents and an index. Any commercial materials mentioned should be referenced and their cost specified.
10. It should conspicuously state the title, authors, sponsors or contributors, tell where it may be purchased and indicate the cost.

Managing a curriculum is as important as choosing an appropriate curriculum. Even a great one can have little or no effect if it is poorly implemented and monitored.

If you use a special curriculum, you will still need to make additional materials. Your "homemade" materials, and other supplemental materials, can and should be used to meet each student's unique needs -- needs which cannot be foreseen by any published curriculum. Your creativity is essential to the success of your retarded students. A core program could, however, help you provide structure and direction and should make it easier to manage the overall curriculum. For many retarded students you can do a good teaching job by carefully choosing supplementary materials which meet their specific skill deficits.

In addition to the examples which follow, Chapter X, Models of Service Delivery, describes a program entitled Vocational education for mentally handicapped students: A procedure manual, developed by R.J. Yoshimura W.V. Suzuki, Oregon State University, Corvallis, Oregon, in December, 1978.

SAMPLE CURRICULUM NUMBER ONE: MASONRY

Unit

Spreading mortar

Task

Seat mortar to trowel

Date

1979

Developed by

Douglas H. Gill, Ph.D., Georgia Southern University, Statesboro, Georgia.

Summary

This unit is an example from a series of units developed by a group of Georgia special educators and vocational educators. They were brought together for several meetings as part of a federally funded project. Mutual understanding, cooperative planning, team instruction, and revised curricula resulted from those meetings. Figure Eleven is a sample of one such curricula for student use.

SAMPLE CURRICULUM NUMBER TWO: SMALL ENGINE REPAIR

Unit

Overhaul

From

Capital Area Career Center, 611 Hagadorn Road, Mason, Michigan 48854, (517) 676-1051.

Module

7501 25 001

Date

November, 1978 (Revised)

Level

IV

Skill Title

How To Overhaul An Air-Cooled Engine

Developed and Written by

Don Foster

Visuals by

Dave Wehrwein

Summary

This unit portrays a revised method for modifying curricula to meet the learning needs of retarded students. The first part of this sample (Figure Twelve) simply lists the job steps into which the overhaul process was divided. The second part of this example (Figure Thirteen) reproduces the first 16 steps as they appear in the student's workbook.

Figure Eleven

CODE ____________________

VOCATIONAL AREA TRADE AND INDUSTRIAL EDUCATION

PROGRAM CONSTRUCTION TRADES

OCCUPATION MASONRY

INSTRUCTIONAL UNIT SPREADING MORTAR

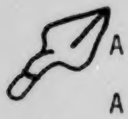
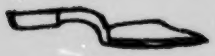
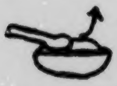
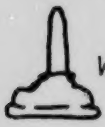
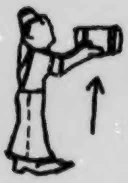
PERFORMANCE TASK SEAT MORTAR TO TROWEL

PERFORMANCE-BASED TASK ACTIVITIES

YOU WILL:

1. LOAD A TROWEL WITH THE RIGHT AMOUNT OF MORTAR.
2. SNAP YOUR WRIST TO MAKE THE MORTAR STICK TO YOUR TROWEL.

WORDS

HOW TO SPELL	WHAT IT MEANS
TROWEL	 A TOOL USED TO SPREAD MORTAR
MORTAR	A MUD-LIKE MIXTURE
MORTARBOARD	A PLACE THAT HOLDS THE MORTAR YOU WILL USE
LOADED TROWEL	 A TROWEL THAT HAS MORTAR ON IT
SCOOP	 TO PICK OR FILL UP. I SCOOP UP MY ICE CREAM WITH MY SPOON
WRIST	BONES BETWEEN YOUR ARM AND HAND THAT LET YOU MOVE YOUR HAND
SNAP	A QUICK WAY OF MOVING YOUR WRIST DOWN, OR UP
SUCTION	 WHEN SOMETHING STICKS TO SOMETHING ELSE, LIKE A PLUNGER TO A FLOOR
AMOUNT	HOW MUCH
TOWARD	COMING AT YOU. THE SCHOOL BUS IS COMING TOWARDS ME
LIFT	 MOVE UPWARDS. I WILL LIFT THE BOX
MUD	ANOTHER NAME FOR MORTAR- LIKE A NICKNAME

You Will Learn To:

1. HOW MUCH MORTAR TO PUT ON A TROWEL.
2. HOW TO SNAP YOUR WRIST WHILE HOLDING A TROWEL LOADED WITH MORTAR.
3. HOW TO CHECK TO SEE WHETHER OR NOT YOU CORRECTLY "SEATED" THE MORTAR TO YOUR TROWEL.

You Will Be Given:

A TROWEL

A MORTARBOARD WITH MORTAR ON IT

You Can Do This When:

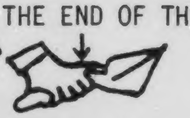
YOU CAN PUT THE RIGHT AMOUNT OF MORTAR ON A TROWEL, AND SNAP YOUR WRIST WHILE HOLDING IT SO THAT WHEN YOU TURN THE LOADED TROWEL UPSIDE DOWN, THE MORTAR STICKS TO IT BEFORE FALLING OFF.

WHAT YOU DO:

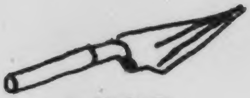
1. TAKE YOUR TROWEL OVER TO THE MORTAR ON YOUR MORTARBOARD.

* REMEMBER:

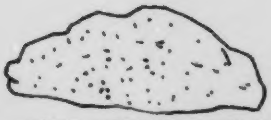
TO PUT YOUR THUMB OVER THE END OF THE HANDLE OF YOUR TROWEL



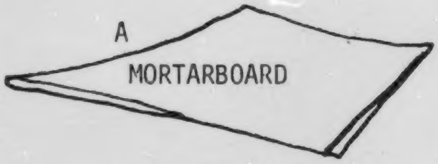
HERE IS WHAT YOU WILL SEE:



A TROWEL

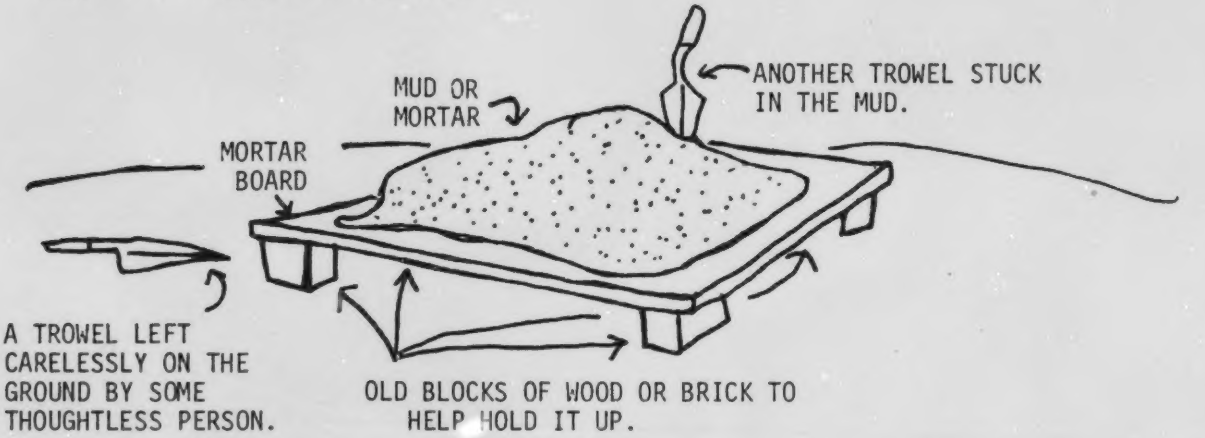


SOME MORTAR, WHICH WILL LOOK LIKE GOOEY MUD AND SAND MIXED TOGETHER.

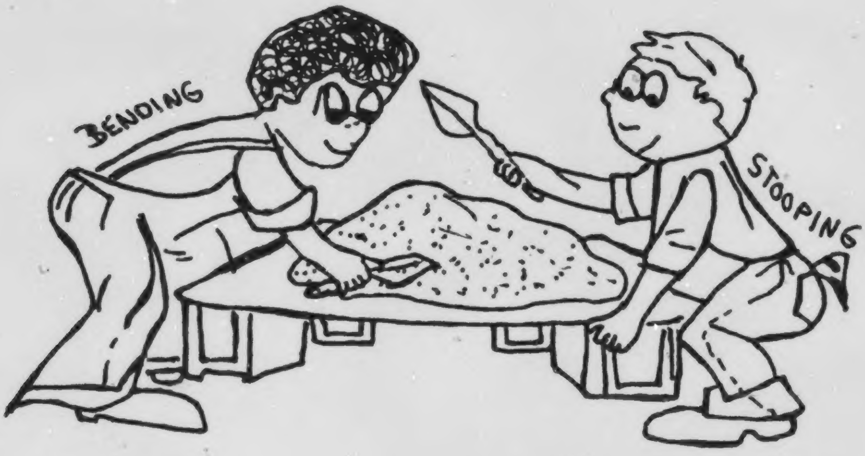

A
MORTARBOARD

AN OLD BOARD, OR SOMETHING LIKE IT. IT HAS MORTAR SITTING ON IT.

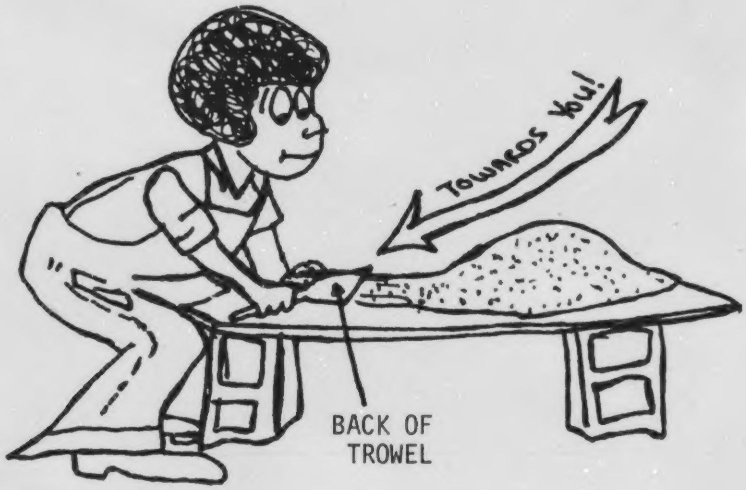
HERE IT IS AGAIN, PUT TOGETHER:


MUD OR MORTAR
ANOTHER TROWEL STUCK IN THE MUD.
MORTAR BOARD
A TROWEL LEFT CARELESSLY ON THE GROUND BY SOME THOUGHTLESS PERSON.
OLD BLOCKS OF WOOD OR BRICK TO HELP HOLD IT UP.

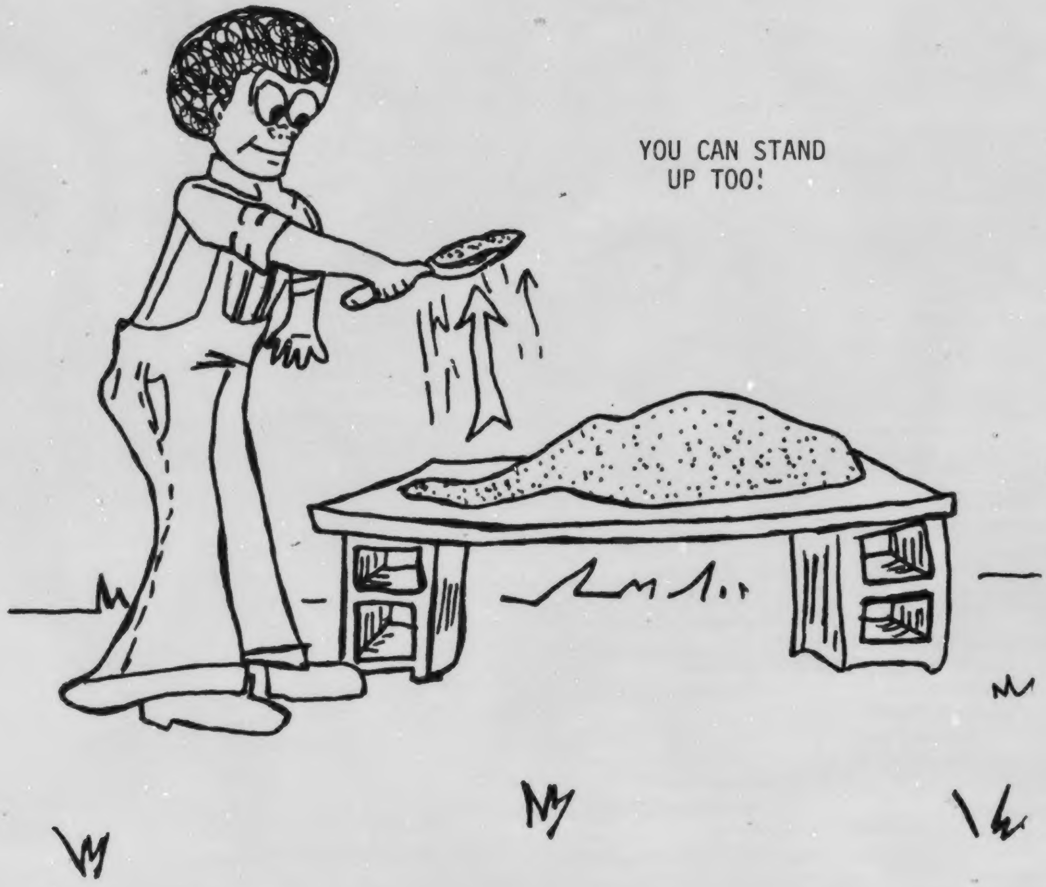
2. BEND OR STOOP OVER THE MORTARBOARD SO YOU CAN GET TO THE MORTAR.


BENDING
STOOPING

3. USE YOUR TROWEL SORT OF LIKE A SPOON. SCOOP SOME MORTAR UP ON THE TROWEL, LIKE YOU WOULD USE A SPOON TO SCOOP UP SOUP. DO NOT PUSH YOUR TROWEL AWAY FROM YOU. BRING, OR DRAG YOUR TROWEL TOWARDS YOU.


TOWARDS YOU!
BACK OF
TROWEL

4. NOW LIFT YOUR TROWEL UP. THIS IS CALLED A "LOADED TROWEL". A TROWEL IS "LOADED" WHEN IT HAS "MUD" OR MORTAR SITTING ON IT.


YOU CAN STAND
UP TOO!

NOW YOU KNOW:

1. NUMBER THESE STEPS IN THE CORRECT ORDER:

__________ LIFT THE TROWEL UP, WITH MUD ON IT.

__________ GO WITH THE TROWEL TO THE MORTARBOARD.

__________ DRAG OR BRING THE TROWEL TOWARDS YOU.

__________ STOOP OR BEND OVER THE MORTARBOARD.

2. __________ WHEN SCOOPING UP THE MORTAR ON THE TROWEL, YOU SHOULD

A) DRAG YOUR TROWEL TOWARDS YOU.
B) PUSH YOUR TROWEL FROM YOU.

3. __________ SCOOPING IS MORE LIKE

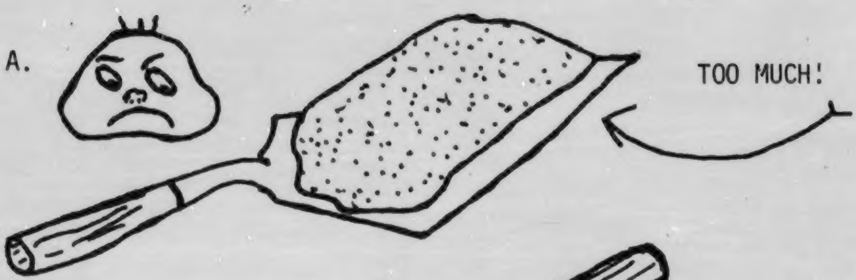
A) EATING SOME SOUP
B) EATING A SALAD

WHAT YOU DO:

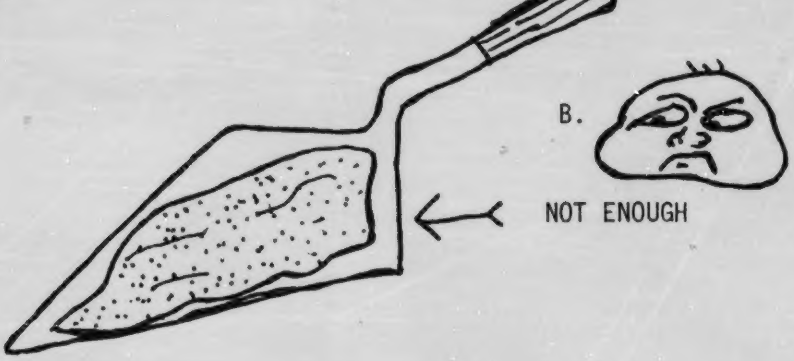
1. CHECK YOUR TROWEL TO SEE THAT YOU HAVE ENOUGH MORTAR.

LOOK AT THESE PICTURES. THEY WILL HELP YOU DECIDE WHETHER OR NOT YOU HAVE THE RIGHT AMOUNT OF MORTAR ON YOUR TROWEL.

A.

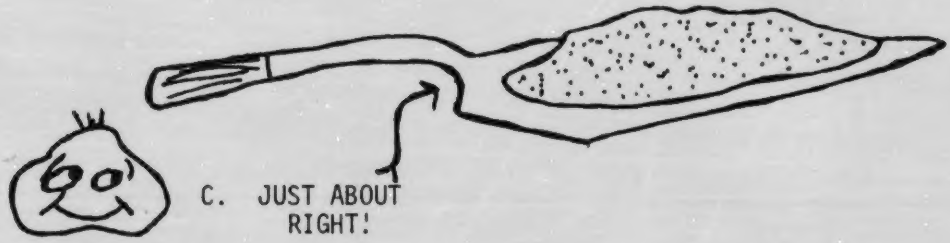


TOO MUCH!



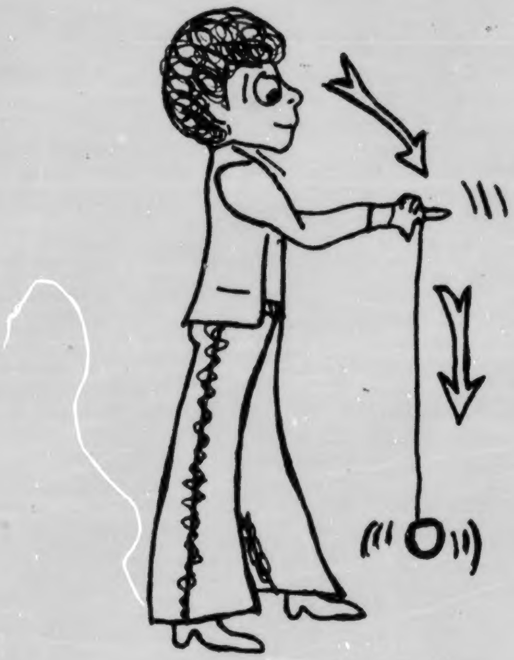
B.

NOT ENOUGH



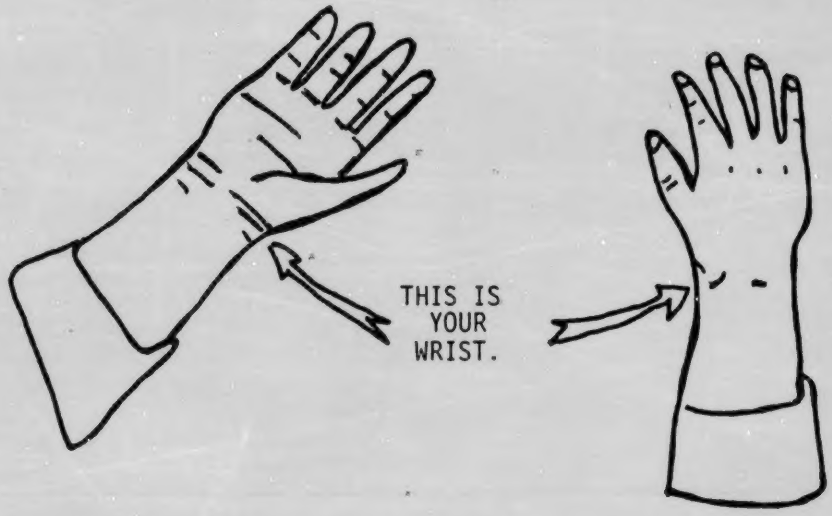
C. JUST ABOUT RIGHT!

2. NOW, YOU MUST HOLD THE LOADED TROWEL, AND SNAP YOUR HAND AT THE WRIST.



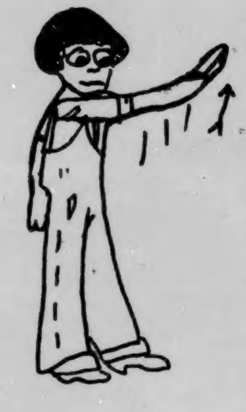
REMEMBER HOW YOU DID YOUR HAND WHEN YOU PLAYED WITH A YO-YO?

TO DO THIS, YOU "POPPED" OR "SNAPPED" YOUR WRIST.

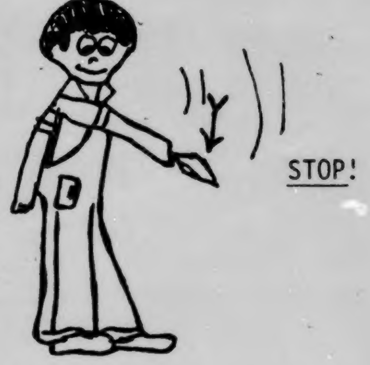

THIS IS YOUR WRIST.

DO THE SAME THING NOW WITH YOUR LOADED TROWEL. BUT DO THIS ONE TIME ONLY. ONE TIME SHOULD BE ENOUGH.

FIRST, SLOWLY RAISE YOUR HAND JUST A LITTLE BIT.



NOW BRING IT DOWN AND STOP YOUR ARM SUDDENLY, BY STIFFENING YOUR WRIST. THIS IS "SNAPPING" YOUR WRIST.



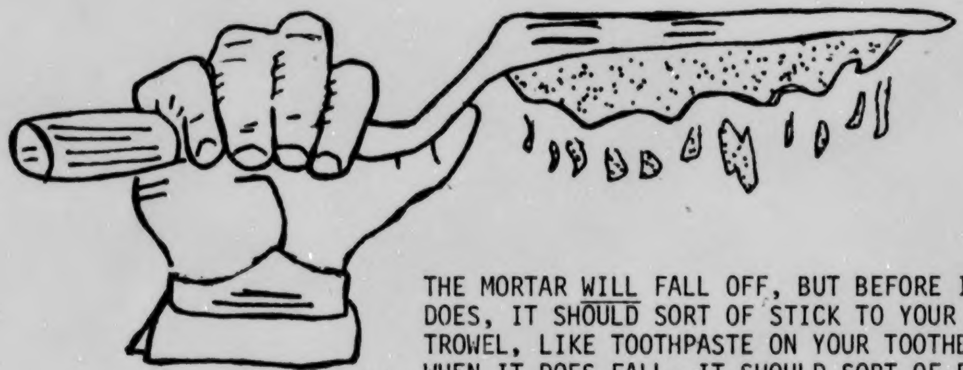
THIS IS CALLED "SEATING THE MORTAR TO THE TROWEL".

THIS MAKES A SUCTION. THIS MEANS THAT IF YOU DID THIS RIGHT, THE MORTAR SHOULD STICK TO YOUR TROWEL BEFORE DROPPING OFF, WHEN YOU TURN YOUR TROWEL UPSIDE DOWN.

3. CHECK YOURSELF!

HOW DO YOU KNOW IF YOU
DID IT RIGHT?

TURN YOUR TROWEL UPSIDE DOWN.



THE MORTAR WILL FALL OFF, BUT BEFORE IT DOES, IT SHOULD SORT OF STICK TO YOUR TROWEL, LIKE TOOTHPASTE ON YOUR TOOTHBRUSH. WHEN IT DOES FALL, IT SHOULD SORT OF DRIP OFF, LIKE RAIN.

IF IT SLIDES RIGHT OFF, OR SPILLS OFF LIKE SOUP, SOMETHING WENT WRONG. TRY IT AGAIN, UNTIL YOU CAN GET IT TO STICK.

GET HELP IF YOU NEED IT. WATCH A FRIEND WHO KNOWS HOW TO DO IT! TRY IT AGAIN UNTIL IT IS EASY TO DO!

Now You Know:

_________ HOW DO YOU SEAT THE MORTAR ON THE TROWEL?

A) ROLL YOUR WRIST

B) SNAP YOUR WRIST

_________ HOW DO YOU KNOW IF YOU DID THIS CORRECTLY?

A) THE MORTAR WILL STICK TO THE TROWEL BEFORE FALLING OFF

B) THE MORTAR SHOULD FALL RIGHT OFF THE TROWEL

NUMBER THESE STEPS IN THE RIGHT ORDER:

_________ TURN THE TROWEL UPSIDE DOWN

_________ HOLD THE LOADED TROWEL

_________ SNAP YOUR WRIST

_________ BE SURE YOU HAVE THE RIGHT AMOUNT OF MORTAR

CAN YOU ANSWER THESE QUESTIONS?

1. NUMBER THESE STEPS CORRECTLY.

___________ LOAD THE TROWEL

___________ HOLD THE TROWEL UPSIDE DOWN

___________ SNAP YOUR WRIST

2. WHAT TWO THINGS ARE NEEDED TO ACTUALLY SEAT THE MORTAR TO THE TROWEL? ____________________ AND ______________.

3. PUT TRUE OR FALSE.

______________ YOU SHOULD CHECK YOUR TROWEL TO MAKE SURE YOU HAVE THE RIGHT AMOUNT OF MORTAR.

MULTIPLE CHOICE QUESTIONS:

4. _____________ HOW DO YOU SEAT THE MORTAR TO THE TROWEL?

A) SNAP YOUR WRIST

B) ROLL YOUR WRIST

5. _____________ TO LOAD YOUR TROWEL, YOU SHOULD:

A) STOOP OR BEND

B) STAND

MORE MULTIPLE CHOICE QUESTIONS.

6. __________ WHEN YOU LOAD YOUR TROWEL WITH MORTAR, YOU SHOULD

A) DRAG THE TROWEL TOWARDS YOU

B) PUSH THE TROWEL AWAY FROM YOU

7. __________ WHEN IS A TROWEL LOADED?

A) WHEN YOU TAKE THE MORTAR OFF IT

B) WHEN YOU PUT THE MORTAR ON IT.

8. __________ TO ACTUALLY SEAT THE MORTAR TO THE TROWEL, OR CHECK IT,

A) YOU SHOULD STOOP OR BEND

B) YOU SHOULD STAND

Figure Twelve

Job Steps in the Overhaul

1. Take all your equipment to your work area.
2. If the engine is a customer's (that is, somebody from outside the center), be sure you have a work order filled out. The model type and serial number of the engine must be correct.
3. Have the owner sign the work order.
4. Now that the order is filled out, take out the third sheet or the copy (cardboard type paper).
5. Then take the two top sheets of the work order to the parts department.
6. If the engine is mounted, be sure to make a note on the hard copy so that the customer will be charged for the extra time.
7. Put on your safety glasses.
8. If the engine is mounted, use your socket set or wrenches to remove it from its mount.
9. If the engine is very dirty, use your power washer or steam cleaner to clean it off. This will keep the inside engine parts clean.
10. Remove the air filter.
11. If needed, put an air filter element on the list.
12. Using your open-ended wrench (if needed), take off the fuel line from the carburetor.
13. With your socket set or open-ended wrench, remove the carburetor.
14. Check the governor linkage for wear (large holes in the carb throttle). Look at the bends of the linkage. If the linkage is worn, and it has to be replaced, list the parts you will need on the hard copy.
15. Check the holes in the throttle plate where the governor link goes.
16. Check the throttle shaft for looseness.
17. Take apart the carburetor and, while you are doing it, remove any rubber or neoprene.
18. Remove the air housing.
19. If the engine uses a rewind starter in the housing, pull the rope all the way out.
20. Check the rope to see: a) if it is frayed; b) if the rope goes all the way back into the housing.
21. If the starter needs parts, put them on the list also.
22. Using your open-ended wrench or socket set, remove the flywheel nut or starter clutch assembly.
23. Take off the flywheel.

24. With your mercotronic tester, check the following parts: a) coil b) condenser c) points.

25. List the parts you will probably need.

26. With your speed wrench or impact socket remove the head of the engine.

27. Check the head and the top of the pistons. As you do, ask yourself these questions: a) is the head gasket blown? b) how much carbon is there in the head and on the piston? c) is the carbon hard or oily?

28. With your socket or wrench, loosen the oil plug underneath the crankcase.

29. Drain the oil.

30. After the oil is drained, hold the crankshaft and try to wiggle it. If it moves more than usual, replace the sump or put in new main bearings.

31. Remove the sump or the side cover.

32. Look at how the rod is connected on the crankshaft. Ask yourself these questions: a) Is there an oil dipper on the rod? b) How is it put on?

33. With your hand, turn the crankshaft until the piston is in the middle of its stroke (its up and down motion). This puts the piston about 1 inch or so from the top of the cylinder.

34. Twist the crankshaft back and forth a little and notice if there is any looseness between the rod and the crankshaft. If there is, you will have to mike the crankshaft and you will need a new rod.

35. Add a new rod to the list.

36. With your socket and ratchet loosen the rod bolts and remove the rod cap and dipper (if there is one).

37. Very carefully push the rod and piston to the top of the cylinder.

38. Again, very carefully push the piston and rod out of the cylinder. Be ready to catch the piston as it comes out.

39. Get the correct manual for the engine on which you are working.

40. Remove the rings from the piston. Check the piston skirt clearance.

41. If you are going to use the old piston, with feeler gauge check piston ring land clearance. If it fails this test, put a new piston on the list of parts you will need.

42. Remove the camshaft and tappets.

43. Check for cracks and/or broken teeth and mike the lobes on the camshaft.

44. Pull the crankshaft out of the bearing.

45. Mike the crankshaft.

46. Take your screwdriver or socket tool, take off the valve chamber breather assembly or cover.

47. Remove the valve springs and retainers.

48. Remove the values.
49. With your wire brush, clean the valves.
50. With a valve grinder, grind the valves and seats at the proper angle.
51. If the valves need replacing put them on the parts list.
52. Now check the valve guides. If they need replacing, add them to your list.
53. Check to see if the muffler is all right.
54. Look to see if the wristpin is in good condition.
55. If you have all the parts listed, take the list to the parts department and have them look up the price of the parts so you can call the customer with an estimate.
56. When you get the list back with parts and prices, total them and add the tax.
57. Then, estimate and total the labor, using a flat rate chart or manual.
58. When you have the total, round it off to the next highest dollar. Then add $10 to the total.
59. Call the customer and give him or her the estimate price.
60. When you get permission to repair the engine, write down the order: 1) to whom you talked 2) the time 3) the date.
61. Give the order to the parts department and have them pull the new parts for you.
62. Before you put the engine together again, and using the proper cleaning fluid, clean, dry and lay out the parts in order so you don't forget to install a part.
63. Rebore or deglaze the cylinder.
64. Put the rings back in the cylinder and check the end gap of the rings. Use a feeler gauge.
65. Be sure the wrist pin licks are in and tight.
66. Correctly install the new rings on the piston.
67. Install the piston ring compressor and be sure to coat the piston and rings with oil.
68. Carefully install the piston and rod assembly in the cylinder. Be sure that rod is going back in the correct place.
69. Be sure to lubricate or oil the rod or crank pin of the crankshaft.
70. Install the rod cap, and torque to proper specifications.
71. Bend the rod locks, if used. Have the instructor check the rod locks or you will have to disassemble it later.
72. If the engine is a vertical shaft, install the oil slinger, if used.
73. Install the tappets and camshaft (be sure to lubricate the camshaft bearings) and be sure to align the timing marks. Now, have the instructor give a final check or you will have to take it apart later.

74. Put a new gasket on the block.
75. Be sure to lubricate the other main bearing and put in the sump.
76. With your wrench or socket set, install two bolts and tighten them (or torque, if there is a spec given in the repair manual).
77. Check end play in the crankshaft and adjust if needed.
78. Install both oil seals.
79. Now you're ready to install the valves. With the chart, first check the valve clearance with your feeler gauge.
80. With your valve grinder, grind the proper clearance on the valve stem.
81. Install the valves.
82. Hook up the valve springs and retainers.
83. Put on the valve breather assembly and be sure that the drain hole for the oil is pointing down.
84. Resurface the head.
85. Install the head and torque it to the proper specs.
86. Start working on the magneto by installing the point plunger.
87. Install the points.
88. Install the coil.
89. Install the condenser.
90. Set the points according to manufacturer's specifications (usually .020).
91. Wipe a clean piece of lintless paper through the points to clean them.
92. Install the flywheel.
93. Spin the flywheel to check for sparks.
94. If you see a spark, install the cover on the points and recheck for spark.
95. Then install the flywheel nut or clutch.
96. Adjust the armature or coil clearance to the flywheel.
97. Take the carburetor from the carb cleaner and blow it dry with the air hose.
98. Open the carb repair kit in order to check that all the parts are there.
99. Put the carburetor together.
100. Check the float level and needle adjustment. It is usually 1 1/2 to 2 turns.
101. Install the carb back into the manifold or block.
102. Hook up the governor link to the proper hole in the throttle plate of the carb.

103. Be sure to adjust the governor linkage and check that all of the linkage is free from binding.

104. Connect fuel line.

105. Install the air housing or starter assembly.

106. Be sure the air filter has been cleaned properly and if needed, recoiled.

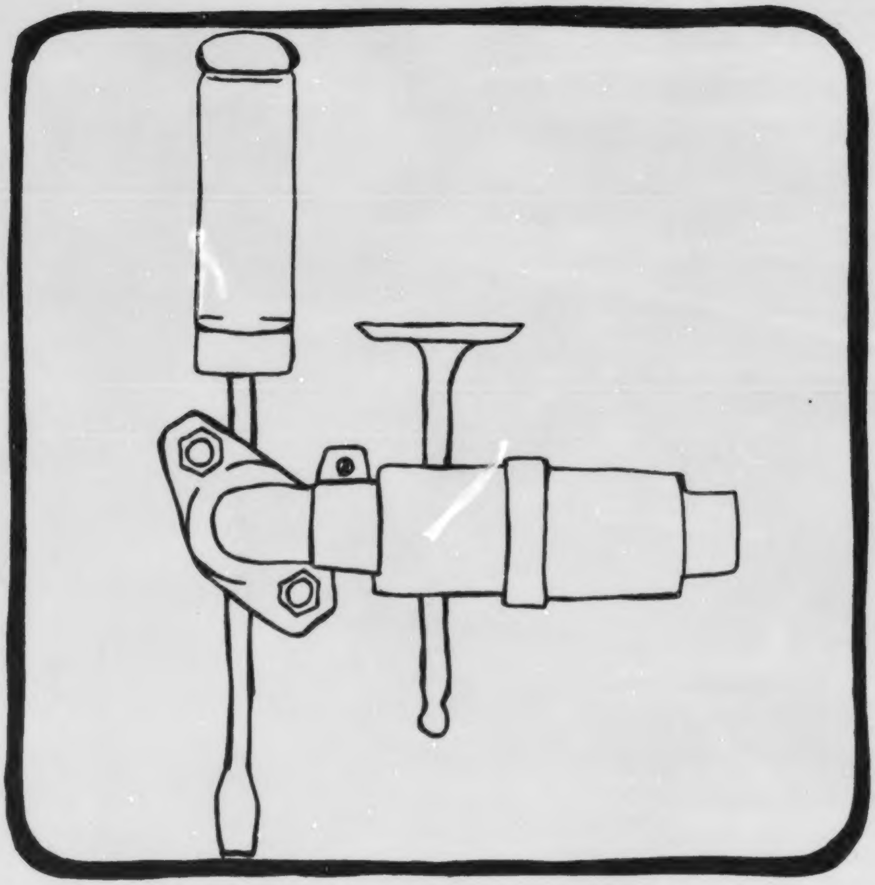
107. Mount the engine.

108. Put on the oil drain nut (be sure not to strip the threads).

109. Fill the engine with oil. Check the oil level.

110. Start, adjust and check for oil leaks.

Figure Thirteen



small engine repair

unit: OVERHAUL

capital area career center

Revised
MODULE: 7501 25 001 DATE: November, 1978 LEVEL: IV

SKILL TITLE: HOW TO OVERHAUL AN AIR-COOLED ENGINE

DEVELOPED & WRITTEN BY: DON FOSTER

VISUALS BY: DAVE WEHRWEIN

WORD GUIDE

OVERHAUL - REBUILD

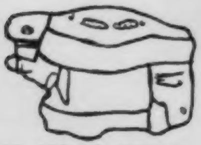
ESTIMATE - GIVE CLOSE GUESS

PERFORMANCE OBJECTIVE

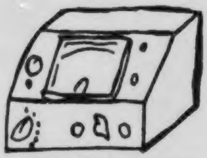
YOU ARE GOING TO LEARN:

1. HOW TO OVERHAUL AN AIR-COOLED ENGINE
2. HOW TO ESTIMATE THE COST OF A JOB FOR A CUSTOMER

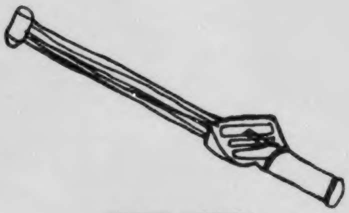
AND IN ORDER TO DO THIS YOU WILL NEED:



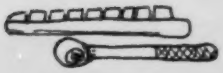
AN AIR-COOLED ENGINE



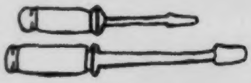
A MERCOTRONIC TESTER



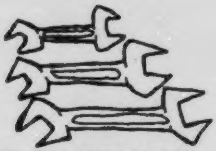
TORQUE WRENCH



SOCKET SET



SCREWDRIVER SET



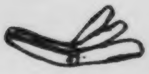
AN OPEN-END WRENCH SET

SAFETY GLASSES

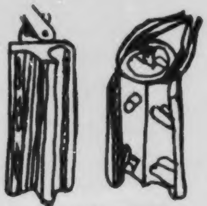
STEAM CLEANER

WIRE BRUSH

CARBURETOR CLEANER



FEELER GAUGE

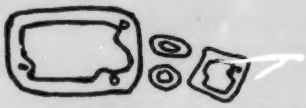


JN OR AN HONE SET

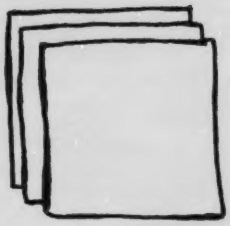
LUBRICATION FLUID

"TURN THE PAGE"

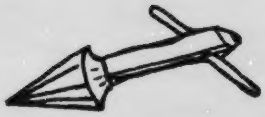
YOU WILL NEED . . .



GASKET SET



LINTLESS PAPER



VALVE GRINDER

WE WILL KNOW YOU CAN DO THIS WHEN:

1. YOU HAVE ALL YOUR EQUIPMENT.
2. YOU HAVE ESTIMATED THE COST FOR A CUSTOMER.
3. YOU HAVE ALL THE NEEDED PARTS FROM THE PARTS DEPARTMENT.
4. THE ENGINE STARTS WITHIN FIVE PULLS, IDLES AT THE PROPER SPEED, AND RUNS SMOOTHLY AT FULL POWER.

"TURN THE PAGE"

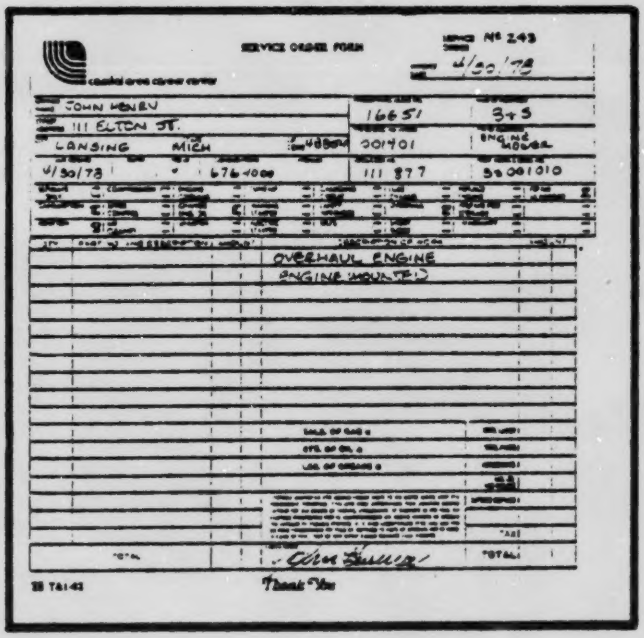
JOB STEPS

READ: **LOOK:**

1. TAKE ALL YOUR EQUIPMENT TO YOUR WORK AREA.

2. IF THE ENGINE IS A CUSTOMER'S (THAT IS, SOMEBODY FROM OUTSIDE THE CENTER), BE SURE YOU HAVE A WORK ORDER FILLED OUT. THE MODEL TYPE AND SERIAL NUMBER OF THE ENGINE MUST BE CORRECT. →

3. HAVE THE OWNER SIGN THE WORK ORDER. →



SERVICE ORDER FORM

Nº 243

4/30/78

coastal area career center

JOHN HENRY

111 ELTON ST.

LANSING MICH

4/30/78

676-4000

16651

3+5

301401

ENGINE MOWER

111 877

53001010

OVERHAUL ENGINE

ENGINE MOUNTED

Thank You

CHECK: ASK YOUR INSTRUCTOR TO CHECK THAT YOU HAVE:

1. ALL YOUR EQUIPMENT.
2. THE ORDER FORM FILLED IN CORRECTLY.
3. THE CUSTOMER'S SUGNATURE ON THE FORM.

"TURN THE PAGE"

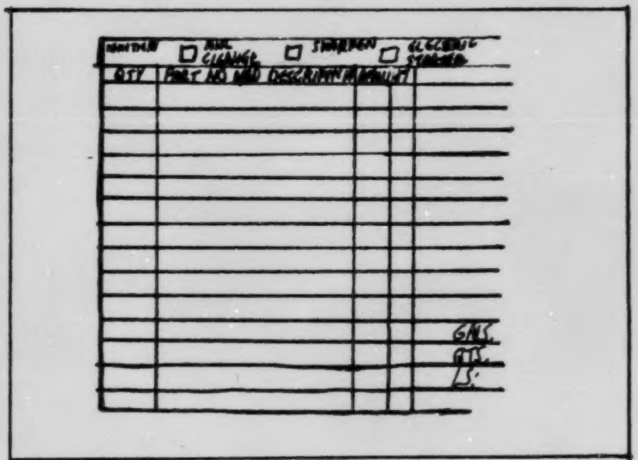
WORD GUIDE

MOUNTED - ATTACHED

JOB STEPS

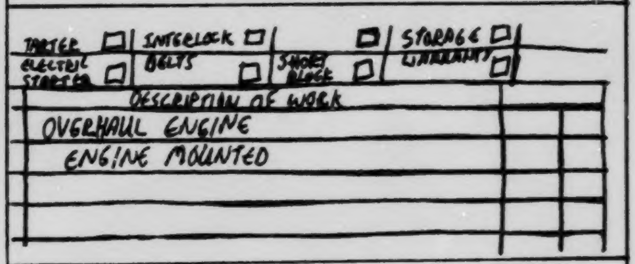
READ: LOOK:

4. NOW THAT ORDER IS FILLED OUT, TAKE OUT THE THIRD SHEET OR THE HARD COPY (CARDBOARD TYPE PAPER).


CARB. CLEANING ☐
SHARPEN ☐
ELECTRIC STARTER ☐
QTY
PART NO AND DESCRIPTION
AMOUNT
GAS.
OIL.
LS.

5. THEN TAKE THE TWO TOP SHEETS OF THE WORK ORDER TO THE PARTS DEPARTMENT.

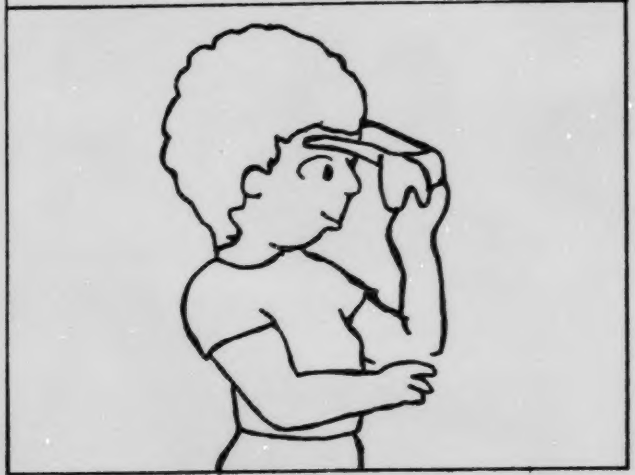
NOTE: YOU WILL WORK FROM THE HARD COPY. LIST ALL PARTS THAT YOU NEED IN THE "MATERIAL USED" AREA. BE SURE TO ADD THE PARTS TO THE "MATERIAL USED" AREA AS YOU ARE WORKING ON THE ENGINE SO YOU WON'T FORGET PARTS YOU HAVE ADDED.


STARTER ☐
INTERLOCK ☐
☐
STORAGE ☐
ELECTRIC STARTER ☐
BELTS ☐
SHORT BLOCK ☐
WARRANTY ☐
DESCRIPTION OF WORK

OVERHAUL ENGINE
ENGINE MOUNTED

6. IF THE ENGINE IS MOUNTED, BE SURE TO MAKE A NOTE ON THE HARD COPY SO THAT THE CUSTOMER WILL BE CHARGED FOR THE EXTRA TIME.

7. PUT ON YOUR SAFETY GLASSES.



"TURN THE PAGE"

WORD GUIDE

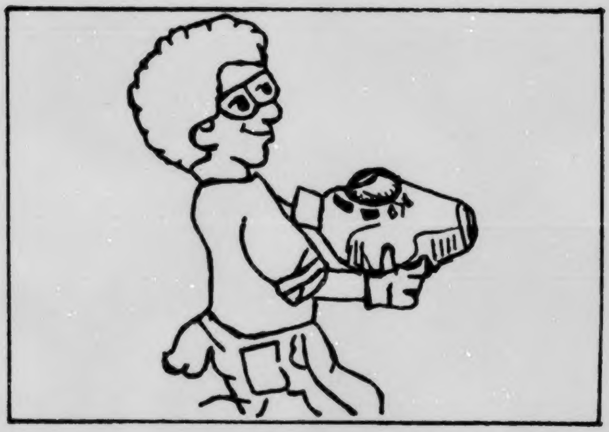
CONDITION - SHAPE OF

JOB STEPS

READ:

LOOK:

8. IF THE ENGINE IS MOUNTED, USE YOUR SOCKET SET OR WRENCHES TO REMOVE IT FROM ITS MOUNT.



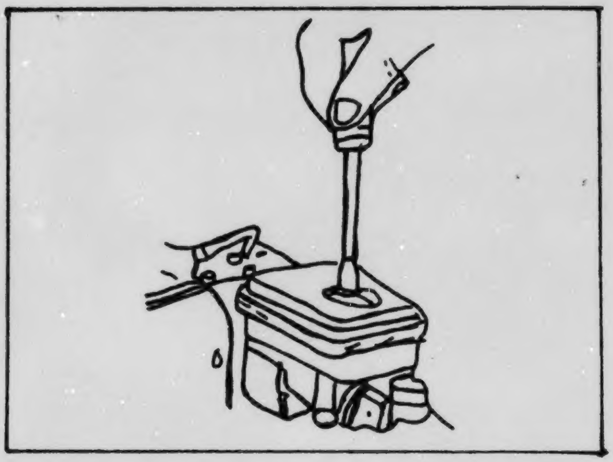
9. IF THE ENGINE IS VERY DIRTY, USE YOUR POWER WASHER OR STEAM CLEANER TO CLEAN IT OFF. THIS WILL KEEP THE INSIDE ENGINE PARTS CLEAN.

10. REMOVE THE AIR FILTER.

ASK YOURSELF THE FOLLOWING QUESTIONS AS YOU CHECK IT:

1. DOES IT HAVE ENOUGH OIL?
2. IS IT CLEAN?

NOTE: IF THE AIR FILTER OIL BATH IS FULL OF DIRT, THE ENGINE MAY BE DAMAGED. CHECKING THE FILTER CAN TELL YOU ABOUT THE CONDITION OF THE ENGINE.



"TURN THE PAGE"

WORD GUIDE:

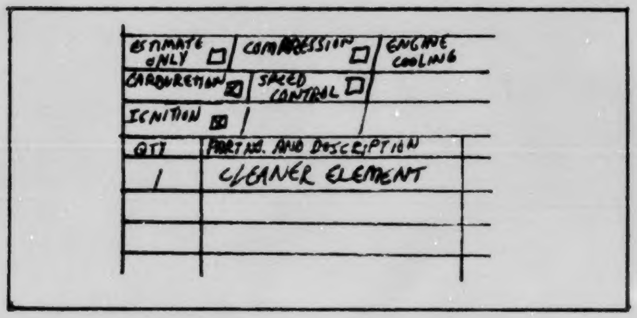
GOVERNOR - CONTROLS SPEED BY ITSELF

JOB STEPS

READ:

LOOK:

11. IF NEEDED, PUT AN AIR FILTER ELEMENT ON THE LIST.

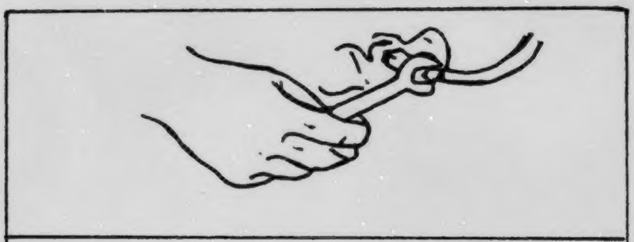


ESTIMATE ONLY ☐	COMPRESSION ☐	ENGINE COOLING
CARBURETION ☒	SPEED CONTROL ☐	
IGNITION ☒		
QTY	PART NO. AND DESCRIPTION	
1	CLEANER ELEMENT	

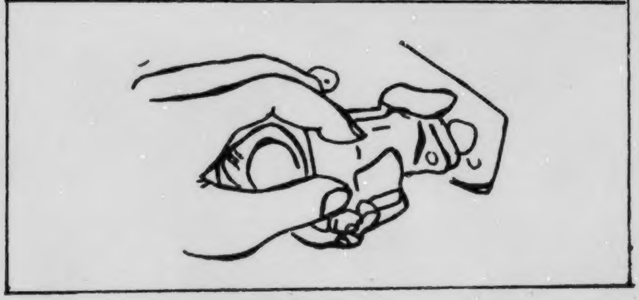
CHECK: ASK YOUR INSTRUCTOR TO CHECK THAT YOU HAVE:

1. TAKEN THE CORRECT WORK ORDER SHEETS TO THE PARTS DEPARTMENT.
2. PUT ON SAFETY GLASSES.
3. REMOVED THE ENGINE FROM ITS MOUNT.
4. CLEANED IT CORRECTLY.
5. REMOVED THE AIR FILTER AND CHECKED IT CORRECTLY.
6. PUT ON AIR FILTER ELEMENT.

12. USING YOUR OPEN-ENDED WRENCH (IF NEEDED), TAKE OFF THE FUEL LINE FROM THE CARBURETOR.



13. WITH YOUR SOCKET SET OR OPEN-ENDED WRENCH, REMOVE THE CARBURETOR.

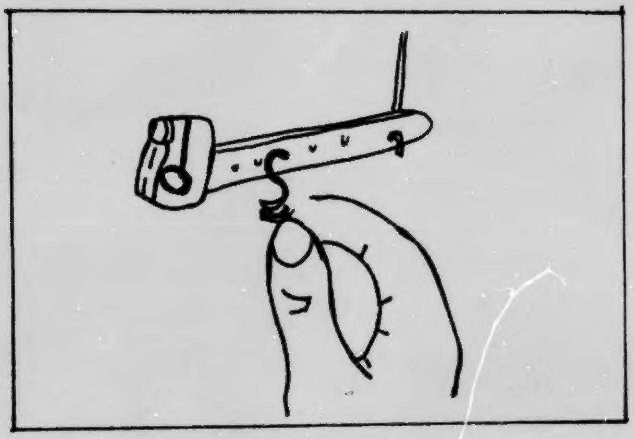


"TURN THE PAGE"

JOB STEPS

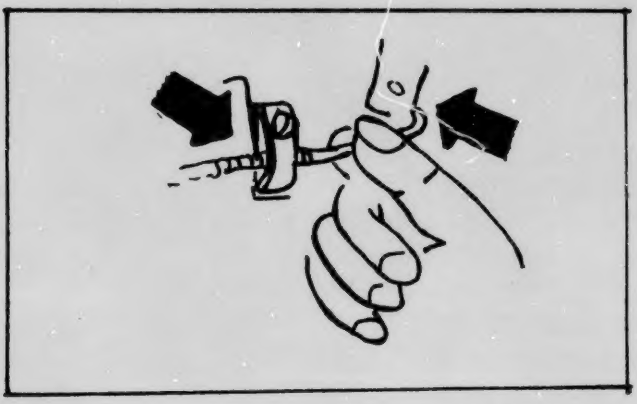
READD: LOOK:

14. CHECK THE GOVERNOR LINKAGE FOR WEAR (LARGE HOLES IN THE CARB THROTTLE). LOOK AT THE BENDS OF THE LINKAGE. IF THE LINKAGE IS WORN, AND IT HAS TO BE REPLACED, LIST THE PARTS YOU WILL NEED ON THE HARD COPY.



15. CHECK THE HOLES IN THE THROTTLE PLATE WHERE THE GOVERNOR LINK GOES.

16. CHECK THE THROTTLE SHAFT FOR LOOSENESS.



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Organizations

The Council for Exceptional Children Division on Career Development, 1920 Association Drive, Reston, Virginia 22091

National Association for Retarded Citizens, 2709 Avenue E., East, Arlington, Texas 76011

National Association of Vocational Education, Special Needs Personnel, c/o Nancy Hartley, Ph.D., Carter Hall, University of Northern Colorado, Greeley, Colorado 80639

The President's Committee on Employment of the Handicapped, 1111 20th Street, N.W., Washington, DC 20210

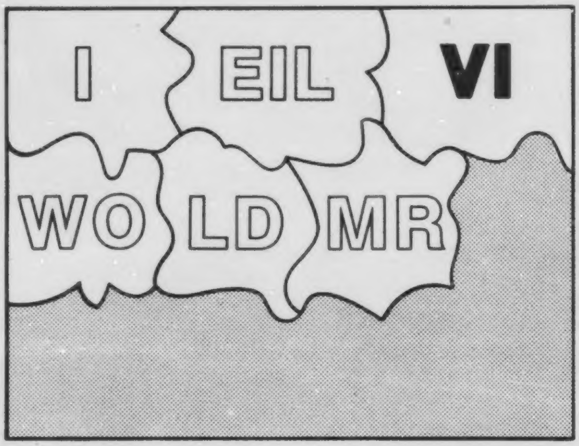
The Association for Retarded Citizens, Council for Exceptional Children, and Association for Vocational Education Special Needs Personnel have many state and/or local chapters. For immediate and timely assistance, check with them.

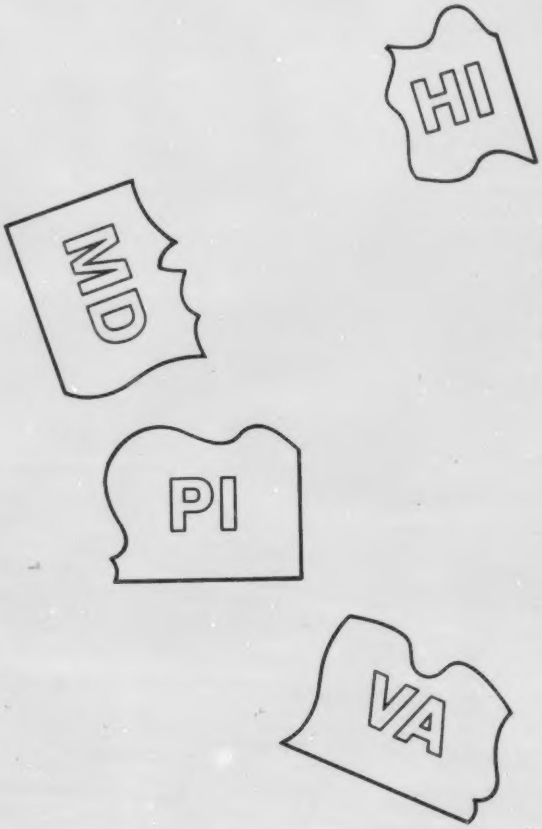
Additional State Agencies

The state or local offices of the Federal-State Vocational Rehabilitation Program

The state or local offices of the Job Service Program

CHAPTER VI





Visual Impairments

Patricia K. Fessenden

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PART ONE

WHAT IT IS LIKE TO BE VISUALLY IMPAIRED

INTRODUCTION

"I'm a person who is blind, not a blind person. I say 'look,' 'watch,' 'I'm glad to see you,' and use other phrases involving sight. I'm not afraid of those words, and you don't need to avoid them when you're with me.

"My loss of sight doesn't mean that I can't hear you - or feel. When you want to talk to me, please talk to me, not a friend or relative as if they were my interpreter."

JOHN'S STORY

John is a successful man in his early thirties who works in a busy office and lives in an apartment downtown. He has been blind since he was 23 when he lost his vision as the result of an auto accident.

After he graduated from high school, John served four years in the army and then returned home to decide what to do next. John's plans dramatically changed, however, when he was blinded in a fiery automobile accident.

For the next two years, John spent most of his time in hospitals and rehabilitation agencies. As a result of the accident, John could not see even bright lights and relied heavily on others at first. Then, John learned to walk and travel independently with the aid of a white cane, to eat and dress himself without assistance, and, slowly, to read braille. Although John had work experience in the service, he had never held any other full time job. After extensive rehabilitation counseling he began to investigate various career options.

John talked with the counselors and admissions officers at a community college, a four year state college, and a regional vocational institute. In all three of the schools, special arrangements had to be made for John to take the entrance exams. None of the schools were optimistic about John's chances for success. After his initial discouragement, John decided to enroll in a general education program at the vocational institute anyway and to select a major program area after the first term.

The school's special students' office arranged to pay students to read lessons to John or make tapes during the first term. However, John had to line up readers himself for several classes. John did well in two English courses and arranged to take exams orally. He took exams in the back of the room with his instructor, while other students took written tests. At first, John carried a typewriter to class to take notes and sat in the back of the room. Soon he started to tape record his notes and to study from these recordings.

John asked to be exempted from the math requirement and the head of the math department agreed. However, his counselor in the special students' office refused to allow any waiver, so John enrolled in the basic math course. At the time, John was furious because the counselor had done everything possible to discourage John from applying to the school and from enrolling in any program. "Your blindness is no problem here but it won't be accepted by any employer. You really should sign up for employment in a sheltered workshop." Her insistence that he take the math course was meant to be the last straw for him - and it nearly was. But her attitude made John mad. He decided to work hard and master the math course, if only to prove her wrong. Years later, John admits her insistence was helpful because math was an important prerequisite for the vocational program he chose.

John tape recorded his math classes and did problems mentally. He then typed out his answers or asked a reader to draw diagrams. When the problems were too complex to do in his head, he would make notes in braille. John also used a braille circular slide rule. The teacher arranged for him to take test materials home to complete at his own speed, but that bothered John because such special treatment was not needed. In the end, John passed this introductory course and went on to take several other vocational courses in math and business.

In his vocational program, John took courses in computer programming, data processing, and general business machines. As his two year program progressed, John gained confidence in his own abilities. He learned how to persist in seeking assistance when confronted with a problem he could not solve. As a veteran over 25, he did not have much in common with most of his classmates. Most were younger and less serious about their school work. But John wanted to mix and meet new people. He began by participating in the after hours sports program at the institute and, later, became involved in other activities.

As graduation neared, John talked with the school's placement counselor and representatives from his state's Department of Vocational Rehabilitation. After numerous interviews, John was hired to work in the payroll department of a government agency. During the next five years, John was promoted to the auditing department and then to a position in the agency's public affairs department.

John's work still involves using the computer, as well as preparing materials, announcements, and speeches for the agency. John relies on a tape recorder and assistance from the secretarial pool when preparing materials. John uses braille to make notes occasionally, but that is usually too slow for him and he prefers to tape record his notes.

John earns a salary that is competitive with others in his department and he feels that his future at the agency is bright. He lives in a downtown apartment and rides a bus to work daily. He belongs to two civic organizations and one professional organization. He has met most of the friends he has now in these organizations or at work. John says he spends much more time than his peers commuting to work and meetings, shopping, and accomplishing everyday basic living tasks. But he enjoys independence and seeks assistance from friends or agencies serving the blind only when necessary.

In talking with John today, he repeatedly mentions his personal philosophy that "no special exceptions for visually impaired should be made". John believes that modifications need to be made, but that standards and quality should not be compromised. In talking with vocational teachers and counselors, John urges them to remember that long range goals of (1) employment and (2) integration into sighted society, should always be considered when planning any modifications.

JAN'S STORY

Jan is a twenty-one year old student in a postsecondary vocational school. She is enrolled in an allied health program. Jan has been partially sighted since birth and she can distinguish light and darkness, shapes and forms, and very bright colors, although she is unable to read standard printed material.

At 20, Jan graduated from a vocational high school program where she had studied a general business curriculum with several courses in typing and transcribing. Throughout high school, Jan wore very thick glasses and used a special hand-held magnifier in class to read handouts and printed matter. If the material was too lightly printed or too small, Jan had to meet with her teachers before or after class to discuss the lesson. Jan's typing speed (from regular printed material) was slow because it took her so long to read the material to be typed. Her speed typing from material recorded on a dictating machine, however, was much more rapid - in fact she was third highest in her class in dictating tests. When results of all her typing tests were averaged together, Jan was an average or slightly below average student.

Jan had many problems adjusting to high school, however. She spent much time practicing in the typing lab and stayed by herself most of the time. She refused to enroll in the high school coop program where students worked off campus 2 days a week for a private employer. She spent the time working in the school's main office instead. Throughout high school she had no close friends and participated in no extra curricular activities. Her mother drover her to school in the morning and picked her up at night. Jan rarely left her home on evenings or weekends. Jan always resented being labeled "nearly blind", so she refused to carry a white cane or to use a special magnifying attachment that could be fitted on her glasses to improve outdoor vision.

When she graduated from high school, Jan was not interested in seeking employment as a typist or secretary. After spending the summer at home, her mother insisted that she make an appointment to talk with a counselor at the area vocational college. Jan saw a counselor and took some preliminary tests. She was then urged to enroll in the school's business program and build upon the skills she had learned in high school. Jan was not interested, however. Instead, she toured the school and talked with teachers in the health occupations area. She decided that the occupational therapy assistant and physical therapy assistant programs were of greatest interest to her.

Jan did not have any courses in biology or physiology in high school. Therefore her counselor recommended that she take the two introductory courses in biology and health during her first term. Jan was not able to use the microscope to look at cells, so Jan's teacher and a fellow student cut out large cardboard models of the cells. Jan could see these and practice taking them apart and putting them together. Jan's teacher also prepared some opaque transparencies that could be enlarged on the wall. Jan had to memorize the size, shape and color of biological organs or components that her instructor described orally. In preparing slides, Jan prepared the red dye solution to tint various parts of organs. She did not match colors as other students did, but memorized the number of drops of liquids mixed together to make the appropriate dye.

With the assistance of her instructor and a tutor, a second year student in the health occupations program, Jan participated in almost all class lessons. Upon the recommendation of one instructor, she joined the Health Careers Information Club at the school. Jan is still not sure which area she wants to study, but she is leaning toward the physical therapy assistant program.

Jan's attitude toward, and interest in, her fellow students has improved significantly since high school. Pairing her with students as lab partners in class has increased her interaction with classmates. Jan still refuses to use any visual aids other than her glasses when walking in the corridors or outside, but she does use several magnifying and telescopic aids in labs. A visually impaired student has never enrolled in the physical therapy assistant program at her vocational college. However, Jan, her biology instructor, and counselor are optimistic that she can succeed in the program.

PART TWO

DESCRIPTIONS AND MODIFICATIONS

VARIATIONS IN VISION

Total darkness...
Some light perception...
Ability to distinguish objects...
Limited field of vision...
Slight fuzziness or blurring...
Normal sight.

DEFINITIONS AND GENERAL DESCRIPTION OF VISUAL IMPAIRMENTS

"Over here, Jane, over here." "Watch out! What's the matter fellow? Didn't you see that cart in the hall?" "Please do not touch the exhibits." "Not that way, this way."

Being visually impaired can affect a student's life style, study habits, mobility, and, most profoundly, the student's interpersonal relationships. Many students who have visual impairments have obvious handicaps and they can be recognized by their thick glasses, magnifying lenses, white canes or other aides. In addition to these outward signs, sighted students, teachers, and counselors may react to visually impaired students by overprotecting them, ignoring or avoid them, or even by treating them as if they were superhuman beings. Warnings such as "Watch out," or "Let me do that," or comments such as "He's got super hearing because he's blind," may be a part of life for visually impaired students. It may also create a gulf between these students and their peers.

A classroom teacher or a counselor's relationship with a visually handicapped student may depend on the individual's knowledge of visual impairments and on the extent of the student's visual abilities (or disabilities). Visual impairments have many causes and degrees of sight loss vary greatly from person to person.

Some definitions of visual impairment are helpful in discussing a student's visual abilities and their impact on his or her learning abilities:

1. Visually impaired

   - Persons are said to be "visually impaired" if they are either functionally blind or partially sighted. The term "blind" is usually used only for those people who have a complete loss of sight.

2. Functionally blind

   - Persons are said to be "functionally blind" if the vision in the better eye, even with the help of corrective lenses, is either absent or consists only of light perception or light projection. Total blindness (absence of any light perception at all) is relatively rare.

3. Legally blind

   - "Legally blind" persons are those whose vision in the better eye, even with the help of corrective lenses, is no better than 20/200 or if their maximum visual field is less than 20 degrees. "Legally blind" is a term used to define the people who are eligible for government funded services, but may be confusing because one "legally blind" person may have a great deal of residual sight and another may be totally blind.

4. Partially sighted

   - Persons who are "partially sighted" find that the vision in their better eye, even with the help of corrective lenses, is no better than 20/70 but is better than light perception or light projection. People are also called partially sighted if the maximum diameter of their visual field is less than 20 degrees.

5. Fully sighted

   - Persons who are "fully sighted" are those who are not visually impaired.

Causes of Visual Loss

Visual loss has many causes, including hereditary, congenital problems, inflammatory or degenerative disorders, tumors or metabolic conditions. Major kinds of visual conditions are albinism (deficiency in eye pigment), diabetes, glaucoma (elevated ocular pressure), hyperopia (far-sightedness) or myopia (near-sightedness), retinitis pigmentosa (night blindness combined with limited visual field). Furthermore, vision usually declines with age. Visual impairments may be caused by infections, tumors, accidents, glaucoma, cataracts, or optic nerve degeneration. In addition to different causes, people react differently to visual losses. There are differences between newly blinded students and those who are congenitally blind (blind since birth). For example, a newly blinded student may still be handling his or her emotional reaction to vision loss.

Numbers of Visually Impaired Persons

Altogether, more than ninety million Americans have some kind of visual dysfunction -- that is, less than normal eyesight. The American Federation for the Blind estimates that over 3.5 million Americans have some kind of "visual impairment". An estimated one million impaired people lack the vision necessary to read newsprint and, of this group, 430,000 are legally blind. With an increasing number of older Americans, more than 47% of the legally blind are aged 65 or over.

Problems

A person who has a visual impairment may have other disabilities. These other disabilities may further impede mobility, learning styles, and interpersonal relationships. The degree and extent of special help needed by a student with multiple handicaps varies greatly with each individual and is best assessed on an individual basis.

Blindness frequently creates barriers between a person and his or her environment. A visually impaired person may face limited mobility and experiences in daily life. The individual may be dependent on other people or mechanical devices. Blindness also has a major impact on a person's life work and plans for vocational training. A blind persons's reaction to blindness and the environment has a profound effect on those plans.

Services Available

Surprisingly, less than 5% of the blind population uses guide dogs. Approximately the same percentage reads braille. Mechanical aids and adapted materials are the most common aids for the visually impaired. Legally blind students can receive free use of recording equipment and special devices funded by the federal government. Furthermore, there are numerous services and appliances provided for visually impaired students by state agencies and national associations. Many visually impaired students do not seek assistance, however, and hide their handicapping conditions as best as they can. They never notify teachers or resource center personnel of special needs, until they run into academic trouble in the middle of the term.

Partially Sighted Persons

Although classroom teaching modifications may be the same for all visually impaired students, there is a significant difference between being blind and having partial sight. Many partially sighted people can proceed through a regular school program, maximizing their useful vision. Others fail to use the limited vision they have and face life as if functionally blind. Gerensky and others (1979), conducting research studies on the partially sighted, suspect that many people now classified as "legally blind" have a greater degree of visual acuity than the term indicates. The causes of partial vision loss are similar to the causes of blindness and are frequently the results of diabetes, glaucoma or cataracts (cloudiness within the lens of the eye). Many partially sighted people can walk and travel

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with limited or no assistance, but they lack adequate vision to read regular printed material without the use of special aids. Unusually bright lights or glare in a lab or classroom may effectively blind a partially sighted person.

Partially sighted people can use numerous visual aids to make maximum use of their residual vision. With these aids, partially sighted people can do many more things for themselves than can the functionally blind. In the past, however, many partially sighted people have been trained as if they were blind and have used no visual aids. Visual aids such as monoculars, binoculars, microscopic and telescopic spectacles, magnifiers, jewelers' loupes, and enlarged markings can assist partially sighted individuals. Larger signs, color coded signs and other environmental aids can assist individuals with limited vision. Even with such aids, the partially sighted may have great difficulty seeing at night or making fine visual discriminations between colors or small objects.

In surveys of partially sighted adults, respondents state that the most frustrating problems associated with their limited vision include problems with: reading, transportation, job difficulties, recognizing people, social acceptance, restricted activities, the inability to see surroundings in detail, and dependence on others. These people report that they usually avoid walking by themselves at night, worry about descending stairs, watch television but miss a lot of detail, and find that visual problems affects their jobs. In addition, half of those surveyed have never stayed at a hotel or motel, worry about finding public restrooms, and rely heavily on clerks and waiters in department stores and restaurants.

These definitions and descriptions of visual impairments are general, because each student's visual abilities and attitudes are different. These guidelines can be helpful, but each student will need to be assessed individually before any modifications can be made.

Generalizations

Many generalizations about the blind are made by teachers and counselors. The blind have highly developed senses, want to work with the sighted, need structured programs, and need you. These generalizations may be helpful, but it is important to remember that each blind person has individual strengths and weaknesses. According to Burlingame and Bowe (1978), blind people do not hear better than others, but they frequently make better use of what they hear. The problem with generalizations or labels is that they often consign the student to a category and effectively end his or her progress toward new goals.

Barriers Facing the Visually Impaired

According to Frank Bowe and others (1978), there are six major barriers that face the visually impaired as well as other handicapped individuals:

1. Architectural (mobility/transportation)
2. Attitudinal
3. Educational
4. Occupational
5. Legal
6. Personal

The architectural or mobility barrier can be one of the most significant. Curbs, stairways, or slippery walks may be major obstacles to a newly blinded person or a congenitally blind person who has not mastered a mobility training program. Guide dogs, if they are used, are of little value for blind travelers unless they have already learned independent travel skills. Those visually impaired students who are afraid of obstacles and are uncertain about their ability to move from one place to another may develop an abnormal posture. They may lean too far forward or bend at the waist to brace themselves against possible injury. To counteract these and other "blind mannerisms", visually impaired students take special training in mobility and orientation. Mobility training involves mental and sensory orientation to the environment and to physical movement. Along with mobility training, fear of the environment can be minimized if the blind student is encouraged to touch, smell, and hear things that are usually seen by others. Students may use a cane or a dog, but they need to select the best mode of travel for themselves. Most counselors still favor the long cane as the most effective guide for blind and partially sighted individuals (Stone, 1977).

Even after mastering mobility training and independent travel, a blind student may be isolated. If blind since childhood, the student may have been over-protected by a loving family. Students who are loners may have encouraged negative personal reactions from peers and may have developed psychological cocoons to protect themselves from further hurt. Unfortunately, sighted people (even rehabilitation counselors) may feel aversion to social closeness to blind individuals if they have not had blind friends or relatives before.

GENERAL STRATEGIES, INTERACTIONS, FOR TEACHERS WORKING WITH VISUALLY IMPAIRED STUDENTS

Attention Instructor: Your Class Roster #101 is attached - you will have 28 students in your class this term. Note: Joe and Jan (students #5 and #23) are visually impaired. "Now what?"

Perhaps the most important answers for the teacher with Class Roster #101 involve: 1) individual assessment of each visually impaired student and 2) planning ahead. There is no need to plan elaborate curriculum modifications in case a student with this or that disability ever enrolls in the course. Such a process would take too much time. Also, the next special needs student to enroll might need an entirely different kind of modification.

Once the teacher learns that a Joe or Jan is going to enroll, the teacher can begin to plan how best to serve that particular student. Assessment of the student's mental and physical abilities is an important part of the modification process. The earlier this assessment can be accomplished, the easier any needed changes can be made. Formal assessments and records may be used. But more frequently, teachers find that the informal assessments they develop themselves are most useful. The goals of an assessment are to identify barriers confronting students in the existing program and to select the best strategy to overcome these barriers.

Information about a visually impaired student that should be gathered in an assessment includes:

1. What are the student's most effective learning modes:
    - lectures, tactile demonstrations, peer teaching, etc.?
2. What is the student's most effective reading preference:
    - braille, large print, tape recordings, etc.?
3. How mobile is the student in a classroom or work station?

Assessments may take place in the classroom, a learning center, counselor's office, or other location. These assessments may involve actual tasks that are part of the vocational course or basic skills that an entering student will need. (Chapter Nine presents more complete information about formal and informal assessments.)

It may be evident that partially sighted or blind students who enter vocational training may need additional training in prevocational skills such as hygiene, posture, or eating. This prevocational work may be conducted by a community or state agency, high school or postsecondary school. According to one vocational school department head, grooming continues to be a problem for many visually impaired students (George Sippl, Milwaukee Area Technical College, August, 1979). Independence should be fostered in these students, but it is important to bring poor grooming habits to their attention.

These prevocational experiences may also involve exploring various career options. Exploration may include mini-courses or assessment try-outs in the vocational school where students are exposed briefly to various curricula and have an opportunity to test themselves in the skills required in such programs.

Vocational teachers who work with visually impaired students list the following skills as important for success in a vocational training program:

1. Orientation and mobility skills
2. Effective listening skills
3. Typing, braille-reading, and writing skills
4. Maximizing residual vision skills of partially sighted students

Students who lack the above skills may need additional assistance or instruction from a resource teacher or aide.

Once a student's needs and abilities have been assessed, planning ahead for any modifications is the most important factor in creating a successful vocational program. Ideally, planning for and with the student can be done before the first day of class. Modified materials and teaching strategies may require the preparation of special materials, tapes or charts that may take some lead time. Even modifications that do not require special preparation may work best when planned ahead of time with the student, then revised as needed. Adequate planning time allows the teacher to meet with resource teachers or other teachers who have worked with visually impaired students and to examine other modifications that have been developed for these students.

When developing modifications, the teacher's attitude toward a visually impaired student is critical. A lack of knowledge about blindness may be manifested in uncertainty or in fear for the student's safety. Safety is always important in the classroom and the laboratory, but it is also important not to exclude the visually imparied student from an activity solely because he or she is blind. It is important to check first with the student to determine his or her ability to participate in the activity -- either with other students or in a modified form. Frequently, a classmate or "buddy" can be assigned to assist a visually impaired student during a special project or field trip.

Once the student's needs are identified, course modifications begin with an examination of course objectives and materials. It is necessary to review the curriculum and identify areas that may present barriers to a visually impaired student. The teacher will need to evaluate lessons according to some general selection criteria, such as:

1. Usefulness
2. Effectiveness
3. Difficulty
4. Applicability to future job skills

In planning any modifications, select methods of learning that will be most appropriate both for the curriculum and all students -- including those who have visual impairments. Some methods include:

1. audio-visual materials
2. prepackaged learning systems
3. learning circles, small groups
4. individualized learning systems

Selecting the best method may require trial and error.

Other effective teaching strategies include team teaching and the use of resource people who can suggest new perspectives and alternate teaching styles. Other strategies include the development of interdisciplinary or skill building courses. Students who anticipate problems may be encouraged to enroll in other skill building courses, especially in reading, spelling, and mathematics. The use of modules or small mini-lessons that cover one task or skill area may also assist students in mastering a specific vocational area.

Finally, fellow students may be interested in learning more about visual impairment. The teacher may be able to incorporate such information into the course. This information sharing may help to promote communication between all students and to minimize stereotypes.

SPECIFIC STRATEGIES FOR WORKING WITH STUDENTS WHO HAVE LITTLE OR NO VISION

Many students with little or no vision can enroll in vocational programs and use materials or machines without significant modifications. Many modifications, when needed, require pre-planning or inexpensive adaptations rather than massive or expensive redesign.

Orientation to the Classroom

Many teachers and students find it helpful to offer an orientation to the classroom or laboratory before the course begins. Then, as any physical changes in the room are made, it is important to keep the visually impaired students informed. Consistency in the physical arrangement of the room is important for visually impaired students, as it is for special needs students who learn most effectively in a well-ordered environment.

Auditory maps may be prepared to orient visually impaired students to the entire building or campus, and to reduce the time it takes to orient them to their new environment.

In an orientation tour of the classroom, discuss the best possible seating arrangements for visually impaired students. The visually impaired student will rely heavily on hearing. It is thus important for the student to sit close to the instructor or learning center, away from hallway noises or heating and air conditioning noises. In a laboratory with noisy equipment, it is important to arrange seating so that the visually impaired student will be able to hear instructions. The teacher may need to plan to meet with the student before or after each class in a quieter location.

In working with a student who is functionally blind (without usable vision), it is important to present clearly stated course objectives. Clear, explicit verbal directions can greatly aid a blind student, as can demonstrations that the student can touch and/or hear. Frequent review questions can provide feedback on how well the students understand the new material. Then, if necessary, the teacher can focus more attention on students who are not understanding the lessons.

Daily Lessons

Whenever possible, give materials and handouts to the visually impaired student or to the resource center, ahead of time. This enables the student to review materials with a tutor, to have them transcribed into braille or taped. If a classroom or lab activity cannot be modified for the student, then an alternate activity should be found. Such substitutions are important because course objectives and lessons are important in preparing the student for eventual employment. Making it "easy" on the student may assist the student in one course, but harm the student in learning long-term job skills.

In the class or lab, it is important to gain and maintain the attention of visually impaired students. Students without sight are unable to perceive visual clues of approval or disapproval. They may not be able to see a shake of the head in agreement or disagreement. The teacher will need to verbalize feedback for these students.

When talking to a student with little or no vision, it is not necessary to alter the normal speaking voice. Many people forget that vision loss does not hinder hearing. There is no need to talk loudly. Remember to talk directly to the blind student, rather than to an instructional aide or lab partner.

To assist a visually impaired student with notetaking, a fellow student might make carbon copies or photocopy his or her notes after class. Then the student could review these notes later with a tutor or aide. Whenever possible, lend teaching notes to a visually impaired student to review at a slower pace or give them to a resource aide or tutor to enlarge or transcribe into braille.

Aids Available

There are numerous learning aids and tools available to assist blind students in vocational training. The most comprehensive source of such aids is Aids and Appliances, printed by the American Foundation for the Blind. Some aids are very basic and can be prepared by a teacher, instructional aide or student assistant. Other aids are expensive and, if needed, are usually purchased by larger districts, rehabilitation agencies, or special state or federal programs.

It takes time to learn to use any aid properly. Students may be frustrated and refuse to use even the most helpful aid because they receive no explanation or orientation in using it. Rehabilitation counselors or special needs teachers can be helpful resource instructors for students using special aids.

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Some kinds of standard office and laboratory equipment are well suited to students with visual impairments. When selecting new equipment for a program, it is frequently necessary to choose between several models. When choosing between two machines, the one with larger knobs, gradation markings that can be felt as well as seen, and easily accessible on/off switches are more easily operated by visually impaired students. Careful selection can eliminate the need for expensive modifications in the future. Other small modifications can be made on standard machines, such as making raised marks or making special dots with glue.

It is important to consider how the student will use the machinery in a job after the vocational training is complete. Inexpensive, improvised, easily reproduced modifications may be more effective than sophisticated solutions that cannot be transferred to an employer's business. Thus, when possible, try to provide or develop an aid that will make it possible to use an existing piece of equipment, rather than ordering a wholly modified machine.

Other Aids

In examinations, visually impaired students may need modified testing formats. Tests may need to be prepared in large print, in braille, on cassette tapes, or converted into exercises using the sense of touch. Sometimes the testing format need not be changed, but a teacher may need to allow extra time for the student to complete an exam or special assignment. It may be necessary to waive time limits and stress accuracy. It is important for a student to be able to evaluate his or her progress in a course and to know when the new material has been mastered. Teachers and counselors have commented that modifications or special time allotments should be minimal -- only what is needed by a particular student. They should not be designed to spoon-feed a lazy student.

In classrooms and shops today, the tape recorder is the most frequently used technique for taking notes and for preparing modified learning materials. Although popular, tape recorded speech is much slower than the rate at which another student can read printed material. Thus, it takes more time to complete an assignment. Also, a student cannot underline tape recorded material and must review by stopping and starting the tape recorder in order to return to a specific point.

New Technology

Some innovative work is now being done with specially designed machines that compress speech on tape in order to speed up the recording and play-back processes. Technology in this field is changing rapidly and great advances are being made in machines that convert printed words into tactile projections, tones, or computer generated speech.

The OPTACON (Optical to Tactile Converter) is a machine produced by Telesensory Systems, Inc. It allows blind students to read printed material. The OPTACON is made up of a small camera with an electronics component. The student moves the camera across a line of type. The Electronics component converts light patterns into a tactile pattern that can be felt. The OPTACON is still a slow process (85 words per minute). However, new attachments and companion equipment for the OPTACON convert light into sound and generate words at a rate of 225 words per minute.

The STEREOTONER is similar to the OPTACON, but it converts the printed word into a tone pattern. The OPTOPHONE and VISOTACTOR are two related machines that also convert print into sound. The speed of this conversion was slow in prototype models, but is faster than reading braille. The conversion speed is accelerating with each model. These conversion machines all require that the student have enough motor coordination to move the camera across the pages of printed material. The machines are expensive. They are usually used by several students or on a district-wide basis in order to justify the initial expense.

Many teachers of the visually impaired no longer concentrate on having their students learn braille. Braille is a slow process and is rapidly being outpaced by new,albeit expensive, machines. Such machines, however, are becoming more affordable as more models are made.

THE KURZWEIL READING MACHINE converts standard English text on a computer into easily comprehended speech. The machine is attached to a computer terminal and has an unlimited vocabulary. The U.S. Bureau of Education for the Handicapped has purchased models of the KURZWEIL READING MACHINE and placed them in special and regular schools, as well as libraries, where they can be used by visually impaired students.

Other sophisticated appliances and machines have been developed to assist visually impaired students. They include:

1. digital Indexing Tape Recorder System (allows a student to rewind an audiotape and stop at a specific point, thus decreasing search time when reviewing taped notes)

2. talking Cash Register
3. speech Output Accessory (transmits digital laboratory instrument readings into auditory tones)
4. floor and table scales with auditory signals
5. telephone switchboard with raised markings and tones for the visually impaired
6. automatic fluid measuring devices for darkroom work
7. guards and feed indicators for lathes and other industrial machinery

There are many general tools or aids readily available to visually impaired students to assist in reading or writing lessons for vocational courses. Some of the most frequently used include:

1. Braille
2. Large print
3. Tape recorders
4. Talking books
5. Raised letters
6. Slate and stylus (used to make notes)
7. Braille writer (a 6-key manually operated machine)
8. Typewriters
9. Braille verifier (types braille and regular copy simultaneously)
10. Signature guides

For courses in mathematics and computer programming, there are also many readily available aids, including:

1. Abacus designed for the blind
2. Raised clock faces
3. Wire geometrical forms
4. Braille rulers
5. Raised-line checkbooks
6. Raised-line drawing boards
7. Braille dominoes
8. Braille flash cards
9. Cubes with raised braille dots used for simple mathematical problems
10. Raised-line paper or graphs

11. Computer terminals that use braille printers, or those that type braille and conventional type simultaneously.
12. Talking calculators

Aids that are used frequently in other vocational courses include:

1. Braille maps, charts, diagrams
2. Self-threading needles
3. Wooden or cardboard models of specimens that other students see through microscopes
4. Braille micrometers and other shop tools that have special raised markings
5. One-handed tools, such as screwdrivers
6. Braille Dymo tapes to mark lab equipment and models
7. Light probes with audible sounds that check the operating status of machines
8. Guides or templates to help students align objects properly (drill guides, etc.)

Students who have been visually impaired for several years usually prefer specific aids or machines, but newly blinded students may be working with a vocational counselor to determine what learning tools are most beneficial to them. In designing modifications or selecting specific aids or appliances, the students themselves will be the best resource guides as to what modifications will work most effectively for them. The teacher can assist these students by providing extra storage or work space for visual aids or appliances.

Some machines may have several control knobs or switches. A student will probably come to recognize these by touch as he or she gains experience. Until then, raised markings, glue dots or pieces of tape on certain knobs, can help. If two dials are close together, one can be notched or filed down for easier recognition. These and other improvisations take time, but are inexpensive.

SPECIFIC STRATEGIES FOR WORKING WITH PARTIALLY SIGHTED STUDENTS

Many strategies and modifications that are successful with students who have little or no vision, are also appropriate for use with partially sighted students. The major differences is the opportunity to maximize any residual vision and learning skills partially sighted students may have. Partially sighted students in a classroom or laboratory may find routine activities that are difficult, even impossible, to perform. These include:

1. Seeing the chalkboard
2. Taking notes
3. Reading
4. Writing exams or papers
5. Seeing charts, filmstrips, other audio visual aids
6. Reading markings on small instruments such as thermometers or gauges
7. Starting a machine or threading a sewing machine

Usually students with partial sight read print faster than they read braille, but read at a slower pace than other students. If 80% of a student's school work revolves around reading or close visual activity, then the partially sighted student will need much more time to complete assignments (Hanninen, 1975).

A teacher can help a partially sighted student by arranging seats to allow for the best lighting conditions, thus minimizing the glare on the blackboard. The teacher may also pair a visually impaired student with a sighted student. The sighted student would help orient the visually impaired student to new tasks or projects. Partially sighted students may need modifications in the testing process, such as oral tests, taped tests where the student types answers or take home tests that may be read to the student by a sighted person.

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It is also important to consider the partially sighted student when preparing class demonstrations. Wherever possible, try to minimize glare on the work. Speak directly to the class, rather than toward the chalkboard or the front of the room. In these demonstrations, provide as many opportunities as possible for partially sighted students to observe closely or to touch the materials.

Partially sighted students find that unglazed paper, soft lead pencils and felt tip marking pens assist them in reading directions or exams. Typewriters with large size type can be used to produce handouts for these students or be used by the students themselves. Ditto copies (with purple ink) are harder to read than black ink. The teacher can aid the partially sighted student by giving him or her the master, which is usually darker and more readable. Large type books are also becoming more generally available in a wide variety of vocational fields.

There are numerous visual aids that can assist the partially sighted student in a classroom. Aids may be purchased by the student, be funded by the State Rehabilitation Department or belong to the school. Examples of such aids include:

1. Regular or special eyeglasses or contacts
2. Portable magnifiers (hand held, pocket, etc.)
3. Desk model magnifiers (binoculars, monoculars, telescopes)
4. Portable mechanical, optical devices such as image intensifier devices
5. Yellow acetate to cover a printed page and heighten the contrast
6. Penlights
7. White canes
8. Special frames to fit to eyes, glasses, or special equipment
9. Writing guides, heavy lined paper, broad felt pens, etc.
10. Special sunglasses
11. Opaque, overhead or slide projectors
12. Special lamps (desk or floor models)
13. Large print
14. Visors, filters, reading slits
15. Bookstands to bring printed matter comfortably closer to the eyes
16. Closed circuit television (CCTV) (enlarges material to facilitate reading)
17. Passive infrared night viewing devices
18. Inactive classroom television systems

These visual aids can be most useful to students when they are introduced early in their educational experiences. Unfortunately, too many students, parents, and professionals rely solely on ordinary eye glasses and refuse to employ these more effective, and perhaps more obvious, visual aids. Low vision aids need not be complex instruments. As Gerensky (1979) points out, any device that helps people use their sight to better advantage is valuable. Aids may make objects appear larger, brighter, clearer, or may improve the contrast. Low vision aids do not cure eye problems or restore vision. Their purpose is to make the best use of the student's existing vision. These aids will not harm vision and can contribute to successful completion of a vocational program.

USING INSTRUCTIONAL AIDES AND ADVOCATES

Many secondary and postsecondary vocational schools have developed support programs for visually impaired students that revolve around special personnel who assist students as needed. Rather than redesigning or transposing written curriculum materials or lectures into different forms, a tutor or instructional aide is assigned to the partially sighted or blind students. This aide reads materials or serves as the student's "eyes" in a class or lab session.

This one-to-one instruction allows the instructor more flexibility in the curriculum. Last minute changes can be made without handicapping the visually impaired student. Braille transcription or the need to send texts out to be tape recorded can be minimized if readers are used. In the classroom, an instructional aide can explain visual materials to visually impaired students, thus allowing the instructor to spend more time with all the students. One concern about the instructional aide program is the dependency that can develop between student and aide. After graduation, there will be no such aides in a work environment. A student who has relied on the aide too heavily may be easily discouraged.

Funding and training of instructional aides or tutors varies from district to district. Local, state, or federal funds support district programs. If a student needs an aid but there are no funds in the school's program, the State Department of Rehabilitation may be able to supply funds, personnel, or information. Many tutors are paid a minimum wage or paid under federally sponsored work-study programs. Others are considered to be paraprofessionals or professional staff members and receive higher salaries.

Salaries depend on the qualifications and training required of these aides. Some districts hire peer tutors to assist their fellow students. Others hire second year students who have received excellent grades in basic courses to tutor first year students. In other districts, aides must have an associate's degree or a four year degree in either a specific vocational area or in a special needs or counseling area.

Many teachers and administrators now suggest that schools assign advocates to all handicapped students, including visually impaired students. These advocate supplement other support services in the school and serve as liaison between the student and the educational staff. These advocates monitor the students' programs and activities, and act as ombudsmen when necessary.

OTHER RESOURCES

There are numerous local and national government agencies, as well as associations serving the visually impaired, that can help students and schools locate aids, appliances, braille transcribers, and consultants. The State Department of Vocational Rehabilitation and Bureaus for the Blind in various states frequently offer a wide range of assistance for students in vocational programs. Many students contact such government agencies before entering a vocational program; others need to be encouraged to make such contact.

Some of the major agencies that provide or sell aids, appliances, brailled materials or recordings are listed in the Resources for the Visually Impaired at the end of this chapter.

Service organizations, such as local Lions Clubs or Chapters of the Delta Gamma Sorority, sponsor visually impaired students by raising money for special aids or appliances. Other organizations and associations that serve the visually impaired may provide special services or funds when traditional sources or programs are unable. These agencies and associations provide invaluable assistance in the vocational training of visually impaired students.

PART THREE
SUCCESSFUL PROGRAMS

INTRODUCTION

"It's nice to know how I can work with visually impaired students, how to modify my curriculum, how to alter my teaching style, and how to adapt course goals. But do any of these ideas work in real teaching situations?"

The answer is YES! Sometimes the ideal theories and strategies look great in a manual, but do not work in reality. In surveying vocational teachers and counselors across the nation, we have compiled information about several successful vocational programs serving visually impaired students. Some of these modifications are minor adaptations of existing curricula. Others involve more complete alterations or individualized programs. Above all, these programs are designed to meet the needs of specific students. Many offer flexibility to assist the student in gaining employment skills in a vocational area. We hope that these programs can offer ideas and examples for meeting the needs of other visually impaired students.

BUSINESS AND DISTRIBUTIVE EDUCATION

Many visually impaired students enter the business, office, and distributive educational areas. Programs include accounting, business machines, data processing, marketing, sales, and secretarial sciences. One important skill for any student in a vocational program is typing. Whether taking notes or preparing papers, students who can type are a step ahead of their peers. This is even more relevant for visually impaired students who are unable to write or can do so only with a great deal of time and effort.

Typewriters with braille keys are available, but are expensive. As an alternative, some teachers have used braille Dymo tape to cover the keys of a conventional typewriter with braille letters. Generally, such modifications are not needed or are needed for only a short period of time. Once a student learns how to type and gains speed, the student rarely looks at the keys and relies on touch instead. Thus, modifications of typing curriculum for visually impaired students usually focus on the initial learning process and general skill building lessons.

Most teachers who modify typing courses for visually impaired students tape record lessons. Students can then use headphones to listen to the tapes in the typing lab or a learning center. These tapes can also be used by other students who are absent and miss a class lesson.

One teacher reported that using a regular cassette tape recorder could be a problem if a blind student did not understand an explanation and wanted to listen to a specific part again. The student had to take his hands off the typewriter keyboard, rewind the tape, then reposition his hands on the typewriter. The teacher reduced the time needed for this process by putting the cassette in a transcribing machine. The student could then turn the tape on and off and rewind the tape by using a foot pedal control. The teacher also recorded all review sessions and tests for the student's use (Anita F. Collins, 1979).

At a vocational technical institute in Wisconsin, a teacher in the business area received a special grant to record all the Typing I lessons on cassette tapes. Each tape first lists the materials needed for the lesson, then the objectives for the lesson, points to remember, directions, and, finally, skill building drills. The teacher recommends that when students are to type the same line over and over again, the line should be read as many times as it is to be typed (Jane Tealey, 1979, Typing Instructor, Program for the Visually Impaired, North Central Technical Institute, Wausau, Wisconsin). This modification process takes time and preplanning, but once completed, these lessons can be used by numerous students. Furthermore, several vocational technical institutes in Wisconsin share their taped lessons and reduce costs and duplication.

Computer Science and Data Processing

Currently, a popular vocational area selected by visually impaired students is Computer Science/Data Processing. Career opportunities are good and this has attracted many students. Several secondary and post-secondary vocational schools offer pre-enrollment information seminars or evaluation sessions for visually impaired students who are interested in data processing as a career. In these sessions, both students and teachers can evaluate the possibility of success in the program.

In data processing courses, some instructors put lessons on cassette tapes; others use prepackaged brailled lesson materials. The State of California and the System Development Corporation have developed a modified program for teaching data processing. The program includes brailled reference materials and handouts that are reproduced on a braille duplicator, called a Thermoform. For partially sighted students, lessons are put on closed circuit television tapes to enlarge printed material. Students without sight use the optacon.

The California course is six hours a day for six months. It is divided into modules that allow revisions to be made easily. Instructors present lectures with specific verbal descriptions and new materials. Students record these lectures to use as notes when they review for tests. Partially sighted students in this computer science curriculum use visual aids, including monoculars and lighted magnifying glasses. Students with little usable vision design their own programs with statements coded in braille. They then key punch their own programs or record them on tapes to be key punched at a later time. The instructors seek to rely as little as possible on prepackaged or brailled materials because of the rapidly changing nature of the computer industry (Stewart E. Charleston, California, 1979, State Department of Rehabilitation).

In other programs, schools have purchased braille terminals to be attached to computers. Otherwise, there have been few modifications (Ralph Andren, North Central Technical Institute, Wausau, Wisconsin). Some instructors rely on instructional aides to interpret written materials and chalkboard instructions. Other programs do not require visually impaired students to do their own key punching, but have the instructional aides do that. Instructors feel that lack of the key punching skill will not limit a student's employment opportunities because once on a job, such work will be done in a separate key punching department. Program directors cite costs as a reason to use instructional aides in technical areas, rather than develop audio or brailled materials. It may cost $1500 to $2000 for materials and staff time to prepare materials that may soon be outdated (George Sippl, Visually Impaired Department, Milwaukee Area Technical College, Milwaukee, Wisconsin, 1979).

There are many other business/distributive education programs in which modifications are being made for the visually impaired. One other example is the program to train Information Service Expediters. Expediters are responsible for providing information over the telephone or other telecommunications equipment. The program was developed by the Rehabilitation Institute at Southern Illinois University. At the beginning of student's training, relevant business, listening, and interpersonal skills are assessed. Then, individual modifications or a referral for counseling can be made as needed during the training period.

A wide variety of teaching strategies are used, but the Information Service Expediting curriculum is the same for sighted and for visually impaired students. Rather than transcribe a large number of reference material into braille, students memorize information. Repetition and drill are emphasized. Instructors also stress the need to provide adequate work space for each student to store such equipment as brailler, typewriter, recorder, and embossed books. Other equipment needed by the student includes braille paper, slate and stylus, cassette recorder and tapes, appropriate light probes or other visual aides, files, and a signature guide. This program has been used by several districts and the teaching strategies have been adopted in other curriculum areas (Louis Vieceli, Rehabilitation Institute, Southern Illinois University, Carbondale, Illinois, 1979).

TRADES AND INDUSTRY

Teachers who have developed modifications for printed and visual materials have asked how laboratory or shop programs and lessons can be similarly modified. With the use of audio aids, instructional aids, or peer tutors, and adapted equipment, many more visually impaired students are entering programs in the trades and industry vocational areas.

One instructor modified a fuel injection course for a visually impaired student in diesel mechanics. The instructor worked with the blind student by setting specific course goals. Together, they selected specific tasks within the job of diesel mechanic where vision is not required. They outlined a training program to use these skills. When finished with this program, the student will receive a "Limited Diploma" in diesel mechanics listing specific skills that have been mastered.

In modifying this specific course, the instructor assessed the student's needs and decided that a micrometer with braille markings would be needed. It was also necessary to have a person record the text on tapes or to have a text in braille. In developing an individual prescription for this visually impaired student, the instructor and student determined that injection pump disassembly and reassembly could be mastered, as could limited inspection activities and problem diagnosis. Most of the time, shop work was done with a partner. This peer teaching program freed the instructor to work with other students, too. (Jim Koehntopp, Mid-State Technical Institute, Wisconsin Rapids, Wisconsin, 1979)

In developing a course in transportation for visually impaired students at State University College in Oswego, New York, teachers are encouraged to use cut-aways and mock-ups of small engine and automobile components to allow hands-on examination. Students are then able to disassemble and reassemble small motors, as long as they are careful to keep parts separated and in order. Special aids, such as blade-type gauges rather than wire feeler gauges and standard gauges without covers are easier for visually impaired students to use. Along with these modifications, instructors are encouraged to pair partially sighted or other students with visually impaired students.

In a metals course developed in Oswego, modifications are suggested for visually impaired students. Metal working materials are marked so that measurements can be felt as well as seen. In addition, it is important for instructors to orient students to the shop and to metal working equipment prior to the first day of class. In working with machines, students can be taught to count the number of revolutions the controls make. In this metals course, as in a basic electricity course, mock-ups that use cut-outs and buzzers demonstrate basic principles. Also, tape recordings can be used to provide a student with information about work that will be accomplished the next day.

In a woodworking course, students without sight can be taught to identify woods by smell, feel, density, and weight. Simple raised-line drawings for reading plans can be prepared by using a kit prepared by the American Federation for the Blind (AFB). This raised-line kit and others are listed in the AFB's Aids and Appliances directory. These and other modifications suggested at State University College require preplanning but involve only minimal expense (Hanninen, 1975).

Finally, one of the most complete trades and industry programs using modified materials is the Multiple Learning Strategies developed at the Ingham Intermediate School District in Mason, Michigan (1979). Over 1,300 lesson modules in all vocational areas have been developed. These include large visuals and modules printed in large block type for use in small engine repair, graphics, and other programs in trades and industry.

HEALTH OCCUPATIONS

A vocational area that offers significant challenges and promise for visually impaired students is the health occupations area. Traditionally, there has been much concern that modifications for the visually impaired would be so extensive that there would be no substance left in the vocational courses. Another fear has been that such graduates would be unable to obtain employment. However, several courses and graduates are currently proving successful in this field.

Occupational and Physical Therapy Programs

One current program trains blind students in occupational and physical therapy at Saint Mary's Junior College in Minneapolis, Minnesota. Still in its initial three year test period, the program modifies curricula, teaching strategies, and placement procedures to enable the visually impaired to successfully enter the allied health field. Instead of using traditional technique demonstrations in front of the class, blind students are used as demonstration models and thus can feel, rather than see, the techniques. Written instructions and materials have been recorded on tape by the Minnesota Services for the Blind and by readers at the college. Braille Dymo tape is used to label anatomical models.

The program's coordinators sought to limit the amount of adapted equipment needed in the program. The equipment used includes braille measuring devices, timing devices, sphygmomanometers, thermometer, light probes that emit a beep, and meter readers with audio signals. Most of this equipment is available through the American Foundation for the Blind, although the talking meter was developed at the school. The college has increased support services for the visually impaired and offers a complete orientation program. To date, the coordinators have concluded that only minor modifications have been necessary to allow visually impaired students to be successful in these allied health fields (Sevdy and Baum, Saint Mary's Junior College, Minneapolis, Minnesota, 1979).

Other Allied Health Programs

Other allied health vocational training programs for visually impaired students have been developed. In Manhasset, New York, a minimum of modifications are used to train visually impaired persons to be technicians in nuclear medicine or clinical laboratories (Mordin, 1979).

Modifications have been made in the medical assistant and dietetic assistant programs in an Intermediate Vocational School District in Mason, Michigan. Materials are printed in large block type and illustrations enlarged. Ideas about other possible adaptations are included in lesson modules (Capital Area Career Center, Ingham Intermediate School District, Mason, Michigan, 1979).

Aids available through the American Printing House for the Blind are used in health occupational training programs. Some of the most frequently used aids include pull apart cell models, cut away anatomical models, and brailled or specially embossed measuring devices such as rulers, balances, thermometers, and weights. These and other aids can be purchased or regular equipment can be adapted on an individual basis. With these and other adaptations, visually impaired students can succeed in health occupation programs. Placement services available for health occupation graduates are as important as the modifications, instructors claim.

OTHER FIELDS

In other vocational areas, successful modifications have been made. Home economics and agricultural vocational training programs are examples. At Eastern Michigan University, Mary Krieger (1979) has developed a program in hand sewing, pattern layout and cutting, and machine sewing. She videotapes lessons and uses them as an awareness and instructional tool for home economics teachers. After viewing these modified lessons on video tape, Krieger reports positive attitude changes in teachers previously hesitant about working with visually impaired students. These modified lessons stress using the other senses of touch, hearing, and smell. Instructors are encouraged to allow more time for students to complete certain activities and to assign a fellow student as a peer teacher. Above all, independence, freedom of movement, and minor equipment adaptations are stressed in integrating visually impaired students into regular classes.

In agriculture and horticulture, many programs have been modified for visually impaired students. For example, at the Georgia Academy for the Blind in Macon, Georgia, a horticulture program has been developed for blind students. In a twelve month training program at the high school and postsecondary levels, tactile instruction and models have been added to instructional lessons in growing bedding plants, cut flowers, shrubs, and fruit trees (Hanninen, 1975).

Support Services

In many secondary and postsecondary vocational programs, an important element for success in modified curricula is an effective program of support services. Counselors, tutors, and instructional aides can orient visually impaired students to a class, a laboratory or the entire school. Support services personnel have a greater degree of flexibility in adapting materials into audio or tactile forms, and can provide invaluable support to the classroom teacher.

Districts support these instructional services or seek outside funding to supplement local monies. Requirements for paraprofessionals in support service programs vary greatly from district to district, as do training programs. Some tutors or instructional aides are advanced or second-year students who are paid at the federal minimum wage rate to assist new students in the program. Other aides are professional counselors, graduates of four year college programs in special education or guidance, or experts in particular vocational areas. Some districts assign aides for five to seven students from various areas. Others are assigned to assist several students in one specific vocational area. Some programs for training support service personnel are two weeks to one month long. Several hours a day are spent covering information about visual impairments, as well as information about the district's vocational training programs. Simulations of handicapping conditions and medical information about visual loss is presented to some aides by in-house counselors or outside resource personnel. More frequently, however, training lasts one week or less and is informal, or consists of reading a training manual. Most directors of support services conclude that selection of interested, creative, and eager aides is the heart of successful programs (Moshein and Sippl, 1979).

In addition to support service personnel, prevocational and vocational assessment programs have increased opportunities for the success of visually impaired students. In prevocational programs, students can develop basic skills to succeed in vocational programs. These prevocational programs can be taken either prior to admission or simultaneously with introductory courses. Vocational assessment programs allow the student, counselors, and teachers to examine a student's abilities to succeed in a specific vocational area.

Another program that some vocational districts now offer to assist visually impaired and other handicapped students, is open-entry/open-exit. In an open-entry/open-exit program, students can enter a program at various times during the term. They proceed at their own rate until they have mastered all the needed skills. Then they can leave the course and proceed at the next level. Courses with open-entry/open-exit options are presented in modules and thus allow more flexibility for students. The use of instructional aides to assist instructors has allowed more students to enroll in the program.

Residential Programs

The curriculum modifications described in the preceding pages have been made in traditional daytime/commuter vocational schools. There are other successful vocational training programs in residential schools, but these programs frequently differ both in teacher-student ratio and in the number of modifications made. At Perkins School for the Blind in Watertown, Massachusetts, for example, there is one teacher for every four students. A comprehensive prevocational program serves as an orientation program. It also allows a student who is not succeeding in a specific program to withdraw from the course temporarily and work on the needed skills. In vocational areas such as small engine repair, metal working, machine shop, carpentry, photography, and woodworking, a minimum of adapted pieces of equipment is used. Instead, the school stresses teaching students to work with machines and tools that have not been modified. A similar philosophy prevails at many state schools for the visually impaired, including the Wisconsin School for the Visually Handicapped. No aides or tutors are used, but complete vocational evaluation sessions are stressed (Goodwin, Industrial Education Department, Perkins School for the Blind and Robert Okray, Educational Director, Wisconsin School for the Visually Handicapped, Janesville, Wisconsin).

As these exemplary modifications demonstrate, there is no single way to modify all vocational programs for all visually impaired students.

Different students, instructors, and program content lead to different, viable modifications. In many instances, modifications for visually impaired students focus on transcribing materials into braille or onto audio tapes. However, more instructors are developing tactile models or using instructional aides or peer tutors. The creativity and interest of the instructor are perhaps the most important keys to preparing successful modifications.

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RESOURCES

American Foundation for the Blind, Inc.
15 West 16th Street
New York, NY 10011
(212) 924-0420
(Library services, aids and appliances, and talking books for the blind and multiply handicapped)

American Printing House for the Blind, Inc.
1839 Frankfort Avenue
Louisville, KY 40206
(502) 895-2405
(Provides instructional aids on behalf of the federal government for students in vocational programs)

Association for the Education of the Visually Handicapped
919 Walnut Street
Philadelphia, PA 19107
(215) 923-7555
(Materials and information)

National Braille Association
85 Godwin Avenue
Midland Park, NJ 08432
(201) 447-1484
(Braille, large type, and recorded materials)

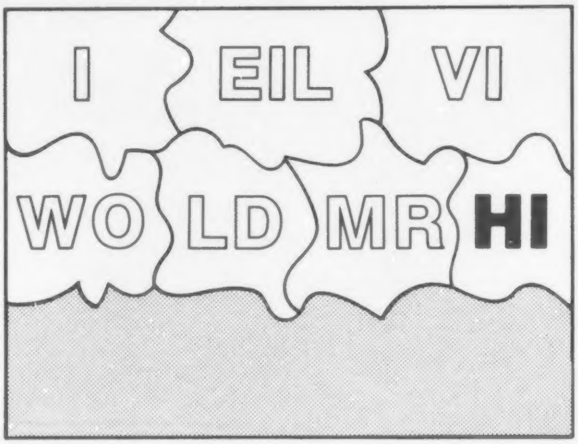
National Federation of the Blind
1800 Johnson Street
Baltimore, MD 21230
(301) 659-9314
(An organization of the blind that offers information about services and support)

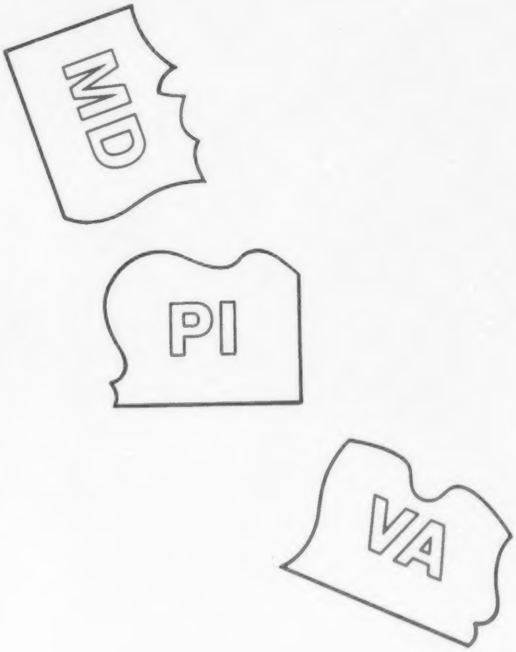
Recordings for the Blind, Inc.
499 West Charleston Road
Palo Alto, CA 94306
(415) 493-3717
(Free recorded educational material)

Rehabilitation Services Administration
Office for the Blind and Visually Handicapped
303 C Street, S.W.
Washington, DC 20201
(202) 245-8492
(General rehabilitation services)

The State Department of Vocational Rehabilitation and Bureau of Services for the Blind in each state

CHAPTER VII





Hearing Impairments

Elizabeth Evans Getzel

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PART ONE
WHAT'S IT LIKE TO BE HEARING IMPAIRED

MY STORY

I am a Person Who Is Hard of Hearing

Sometimes I hear all of a conversation and other times only part of it. Yet people think I'm not paying attention.

While walking down the street, someone calls out hello to me from the corner. When I don't respond, she thinks I'm unfriendly.

I ask someone for directions, but can't see his lips because the sun is in my eyes. When I can't follow what he is saying, he walks away angry and thinks I'm stupid.

When people see that I have difficulty hearing, they stand close to me and shout. When this does not help our communication, they become frustrated and wonder why I still could not understand them.

I am a Person Who Is Deaf

The students I sit next to in class do not often talk with me since my speech can be hard to understand.

Because I use my eyes to obtain information about things around me, I think a friend is angry with me by the frown she has on her face when looking in my direction. Later, I learn she was only deep in thought.

I have many thoughts and feelings to express and when I talk it is not my voice which conveys my meaning, but my hands.

I have the same needs and desires as anyone else. I have my goals to accomplish and dreams to fulfill. Yet, I at times feel very isolated from people, especially from those who can hear. I only hope we can try to communicate better so we can learn more about each other.

JERRY SIDWALL'S STORY

Jerry Sidwall has been working as a nursing assistant for a large hospital in the city where he lives. He became employed in this position after graduating from high school. His work record has been excellent and he thoroughly enjoys hospital work, especially patient contact. Desiring further training to advance his career, Jerry enrolled at the local technical school for a two year LPN (Licensed Practical Nurse) course. Here is his story about gaining admission into a program and his training experience. Jerry and his story are unique in that he has been deaf since six years of age:

"Obtaining my goal of working in the nursing field was not always easy. I have been severely deaf since the age of six, due to meningitis. You may not know that several types of illness can cause hearing impairments: for example, scarlet fever, mumps, and pneumonia. In my case, my hearing was so severely impaired that I can now only hear noises, but cannot hear the spoken word. I do not usually wear a hearing aid, since I find that it is not very helpful in my communication with others. I cannot use a telephone unless I use a special device called a TTY.

"After my parents learned about my hearing loss, I was quickly placed into a special school to develop my lip reading and speaking skills. I had already learned how to use my voice and had some vocabulary and concept development before I became deaf, but I also learned sign language to enhance my communication.

"I continued in this special school until high school when I was able to transfer to our regular city high school. It was during this time that I really started thinking about a career in the nursing field. I believed that this particular field suited my talents and my high interest in helping people. I knew it could be hard to get into the nursing field because of my hearing loss, but I was willing to try. I decided to start seriously exploring the possibilities with the help of my guidance counselor.

"At first, Mr. Peters, my guidance counselor, thought perhaps my sights were set a little too high in wanting a nursing career. But he was more than willing to work out a plan to help me reach my goal. Since I did have the capabilities to achieve academically in this field and my communication skills were good, he suggested that I volunteer at a hospital while in high school. So, for the next three years I was a volunteer worker in our local hospital. This experience really gave me insight into the workings of a hospital and I had a chance to have some patient contact. My communication skills seemed adequate; I had very little trouble interacting with staff and patients. Oh, there were times when communicating became difficult. For example, a staff member might turn his back to me while talking, forgetting that I was deaf. I would sometimes just tap him on the shoulder and remind him that watching the back of someone's head made lip reading very difficult. We would then break out laughing and continue working.

"After graduating from high school, I decided to get a few years of paid hospital work experience before applying for an advanced training program in nursing. Since the hospital staff was familiar with me from my volunteer work, I was able to secure a job as a nursing assistant. I also found this work very rewarding and, after working two years, I decided it was time to apply for a formal nursing program.

"I applied for the Licensed Practical Nursing program at the local technical school. Since the LPN program was affiliated with the hospital where I had been working, I believed the recommendations of the staff would help my chances of gaining admission. It was the most exciting day of my life when my acceptance letter arrived in the mail. I was so happy to finally begin the program which would help me attain my goal.

"I am now involved in my training program and will graduate next year. Other students in my class share lecture notes with me to make sure I do not miss any of the material. I am under the direct supervision of the head nurse, so by the time I receive any instructions for patients from the doctor, they are usually written down. When a patient's buzzer signals for assistance in his or her room, a light also goes on above the door. I just keep a watchful eye for any lights to go on. In addition, I have a special stethescope to take a patient's blood pressure. It has a hearing aid attached to it which is like the one you would wear behind the ear. It also has a volume control so I am able to take very accurate blood pressure readings. Overall, there is very little special treatment for me with regard to my job responsibilities. In some ways, I'm just another regular student in the LPN training program, which is a nice feeling.

"After I finish my training, I hope to continue working at this hospital as a LPN. It has meant a great deal of hard work for me to obtain this goal. But you know, I receive so much encouragement from my family, friends, teachers, and hospital staff that it was worth it. That is really all people need, whether they're deaf or not--just someone to believe in you and your capabilities and to give you the chance to prove yourself."

ELLEN PETERSON'S STORY

Ellen Peterson is 18 years old and has been deaf since birth. She attended special schools for the hearing impaired until this past year. She is extremely interested in learning a trade and has been sent to a local rehabilitation facility for a work evaluation.

Ellen has always been good with her hands and has shown good eye-hand coordination when tested in school. During her work evaluation, she was able to tour the building to learn the various programs offered for training. One particular class was extremely interesting to her and she expressed a desire to enroll. The class was welding and it was determined by her counselor and Ellen that she could enroll in this class. Her rehabilitation counselor was concerned about her chances of employment after finishing the class. Being female in a heavily male dominated field was one barrier to break down. But hiring someone who had extremely limited verbal skills and communicated only through sign language seemed to be another obstacle.

During her training program, Ellen worked on furthering her academic skills through the help of tutors, notetakers, and interpreters. She worked hard to learn the necessary skills in welding and became one of the best students in the class. Her training supervisor communicated with Ellen through limited signs he had picked up and by writing phrases or words on a piece of paper. Ellen's reading level was low, but she could recognize key vocabulary words for the trade and could perform her skills well.

After several months of training, the staff held a conference with Ellen to determine if the job placement process should begin. Since Ellen had never worked before, the staff had been counseling her. The program covered employer expectations, job requirements, getting along with supervisors and co-workers, and other job readiness skills such as filling out applications and interviewing. Since the placement counselor at the training center could sign, he and Ellen practiced the kinds of questions the employer could ask. This practice included dealing with hesitations an employer could have in hiring her.

The placement counselor, John Sills, began contacting potential employers about job openings. He would inquire whether an employer would at least give Ellen a chance to show them her skills. After going through 10 employers, John was finally able to contact someone who was at least willing to meet Ellen and give her a chance.

HI

The day of the interview, Ellen and John met Mr. Sanchez at Harrison Sheet Metal for an on-the-job tryout for Ellen. She performed very well and, after a long discussion with Ellen and John, Mr. Sanchez decided to give her a chance. From reports John receives from Mr. Sanchez, he is not sorry about his decision. Ellen is performing better than her male co-workers and is one of the most conscientious employees he has hired. As for Ellen, it is a dream come true. She is holding a good paying, responsible job. She finds working in a hearing world tough at times, yet she and her co-workers try hard to communicate with each other. So far, she feels accepted by everyone and is happy for the opportunity to work hard and use her skills.

PART TWO

INSTRUCTING HEARING IMPAIRED STUDENTS IN THE REGULAR CLASSROOM

INTRODUCTION

The experiences of Ellen and Jerry describe how they overcame obstacles in order to live in a hearing world. These accounts help us begin to become aware of and sensitive to their situation as hearing impaired individuals. The main purpose of the following two sections is to focus on techniques which will be helpful to you as a vocational instructor in the communicating and sharing of your skills with hearing impaired students. However, before we begin studying these methods, a few important thoughts need to be mentioned.

First, we need to keep in mind that we are talking about individuals who have their own unique strengths and capabilities. Sometimes when concentrating on the "special needs" of a student--in this case someone with a hearing loss--we sometimes tend to define this student only in terms of his or her impairment. It is vital that you view your student as a total person yet being sensitive to his or her needs caused by the hearing loss.

A second point which needs to be raised concerns your role in assisting the hearing impaired student to adjust in your classroom. In your position as a vocational instructor, you are an important model to your students. You assist students in learning skills as well as teaching them the expectations and demands of the world of work. Your attitude and acceptance of your hearing impaired student in your classroom will establish a trend for your other students in their interactions with the student.

The final point concerns the intent of this chapter and your responsibility for incorporating these methods. This chapter will give you background information and ideas for working with a hearing impaired student in your classroom. You play a major role in instructing and training this student, but it is not entirely your responsibility. The information given in the following sections is for you to become more aware of what a hearing loss involves and what you and your hearing impaired student can do together to establish a solid teacher-student rapport. In addition, much of your work with a hearing handicapped student, especially with the deaf, will be done on a team approach. It is quite possible that you will be working with an interpreter, a tutor, or a counselor from the school's guidance department. These professionals can be of great assistance to you in instructing and communicating with your hearing impaired student.

DEFINING A HEARING LOSS

The "invisible handicap" is a phrase often used to describe those individuals experiencing a hearing loss. Have you as a vocational educator observed a student who appears inattentive and disinterested, who fails consistently to respond when questioned, or who interrupts a conversation, seemingly unaware that someone else is talking? Perhaps you have actually taught a student who has hearing difficulties. These examples are only a few of the possible symptoms which characterize someone who is hearing handicapped. These particular examples are given in order to emphasize that before we quickly judge a student as being a discipline problem or not interested in classroom activities, we should become thoroughly familar with the student to determine if something else is actually occurring which hinders his or her progress in the classroom. Without certain cues, for example, spotting a student with a hearing aid, you may not suspect that a student has a hearing loss because there are usually no outward physical signs of a disability.

But what about the student who is presently enrolled in your class who has been identified as hearing impaired? How does one begin teaching such a student? In order to gain a better understanding of such a student, we first need to examine the differences in degree of hearing losses as they affect a hearing impaired student in a vocational classroom setting.

The degree of a hearing loss varies among those identified with this disability. You may have two students in class, both of whom wear hearing aids, one of whom can seem to understand and communicate with you better than the other. The generic term, hearing impairment, is used to describe these varying degrees of hearing losses that individuals experience. So when you read on a student's record that he or she has a hearing impairment, be aware that you need more information concerning the degree of this student's hearing loss. Under this broad term of hearing impairment, two major categories emerge (Milligan, p. 2, 1979 and Davis, 1976):

1. Hard-of-hearing individuals have some ability to hear and understnad the spoken word. Although some words are audible, it does not always mean they are clear. Sounds are not necessarily just softer to a hard-of-hearing individual. Words may be garbled and distorted, making it difficult to understand a verbal message.
2. Deaf persons cannot hear or understand the spoken word. He or she may respond to loud noises or vibrations, but is usually unable to understand speech without visual cues. An important consideration when working with a deaf student is the age of onset. Two classifications are distinguished:
    - congenitally deaf or one who is born deaf
    - adventitiously deaf or one who is born with normal hearing, but later becomes deaf due to an illness or accident

Therefore, in order to understand your hearing impaired student, you need to consider the degree or range of the hearing loss and the age at which the loss was incurred. Why are these important to you as a vocational instructor? This information will help you begin to learn more about your student's educational needs. The degree of a hearing loss defined previously is very general. If you wanted to learn more technically the degree to which an individual could hear, you would read tests by an audiologist, a specialist who administers tests for hearing on such instruments as an audiometer. This particular instrument produces pure tones, and an individual is measured by decibels (a unit used to measure relative loudness of sounds). Figure One on the following page will give you an idea of the varying degrees of a hearing loss (Kirk, 1972). Included in the figure are some educational needs and programs in relationship to the hearing loss which could be helpful to you in your classroom.

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Figure One

Relationship of Degree of Impairment to Educational Needs

	Average of the Speech Frequencies in Better Ear*	Effect of Hearing Loss on the Understanding of Language and Speech	Educational Needs and Programs
Slight Hearing Loss	27 to 40 dB (ISO) 20 dB or less	-May have difficulty hearing faint or distant speech -May experience some difficulty with the language arts subjects -Generally unnoticed	-May need attention to vocabulary development -May benefit from hearing aid -Needs favorable seating and lighting -May need lipreading instructions -May need speech therapy
Mild Hearing Loss	41 to 55 dB (ISO) 20-40 dB	-Understands conversational speech at a distance of 3-5 feet (face to face) -May miss as much as 50% of class discussions if voices are faint or not in line of vision -May have slightly limited vocabulary -Difficulty when tired or inattentive, in distant theater seats, in noise of general conversation	-Individual hearing aid by evaluation & training in its use -Favorable seating and possible special class placement -Attention to vocabulary and reading -Lipreading instruction -Speech conversation and correction, if indicated
Moderate Hearing Loss	56 to 70 dB (ISO) 46-60 dB	-Conversation must be loud to be understood -Will have increased difficulty in group discussions -Is likely to have defective speech -Is likely to be deficient in language usage and comprehension -Will have limited vocabulary	-Special help in language skills, vocabulary development, usage, reading, writing, grammar, etc. -Individual hearing aid by evaluation & auditory training -Lipreading instruction -Speech conversation and correction -Attention to auditory & visual situations at all times
Severe Hearing Loss	71 to 90 dB (ISO) 60-80 dB	-May hear loud voices about 1 ft. from ear to moderate voice several inches from ear -May be able to identify environmental sounds such as sirens and airplanes -May be able to discriminate vowels but not all consonants -Speech & language defective and likely to deteriorate	-Emphasis on language skills, concept development, lipreading and speech -Program needs specialized supervision and comprehensive supporting services -Individual hearing aid by evaluation -Auditory training with individual and group aids
Profound Hearing Loss	91 dB or more (ISO) Over 80 dB	-May hear some loud sounds about 1 inch from ear but is aware of vibrations more than tonal pattern -Relies on vision rather than hearing as primary avenue for communication -Speech and language defective and likely to deteriorate	-Emphasis on all language skills, concept development, lipreading and speech -Program needs specialized supervision and comprehensive supporting services -Continuous appraisal of needs in regard to oral and manual communication -Auditory training with group and individual aids

*Note: First decibel rating is based on current ISO standard (International Standard Organization). Second decibel rating is based on information from U.S. Department of Labor, Manpower Administration, 1971. (Kirk)

The levels of a hearing loss are differentiated on the chart by the terms slight, mild, moderate, severe, and profound. These terms are used to give us a point of reference when comparing hearing losses to the normal hearing range. To help you see how this comparison looks, based on an audiogram (a graphic chart or record of the measurement of hearing), please see Figure Two (Gallaudet College, You and Your Deafness, n.d.).

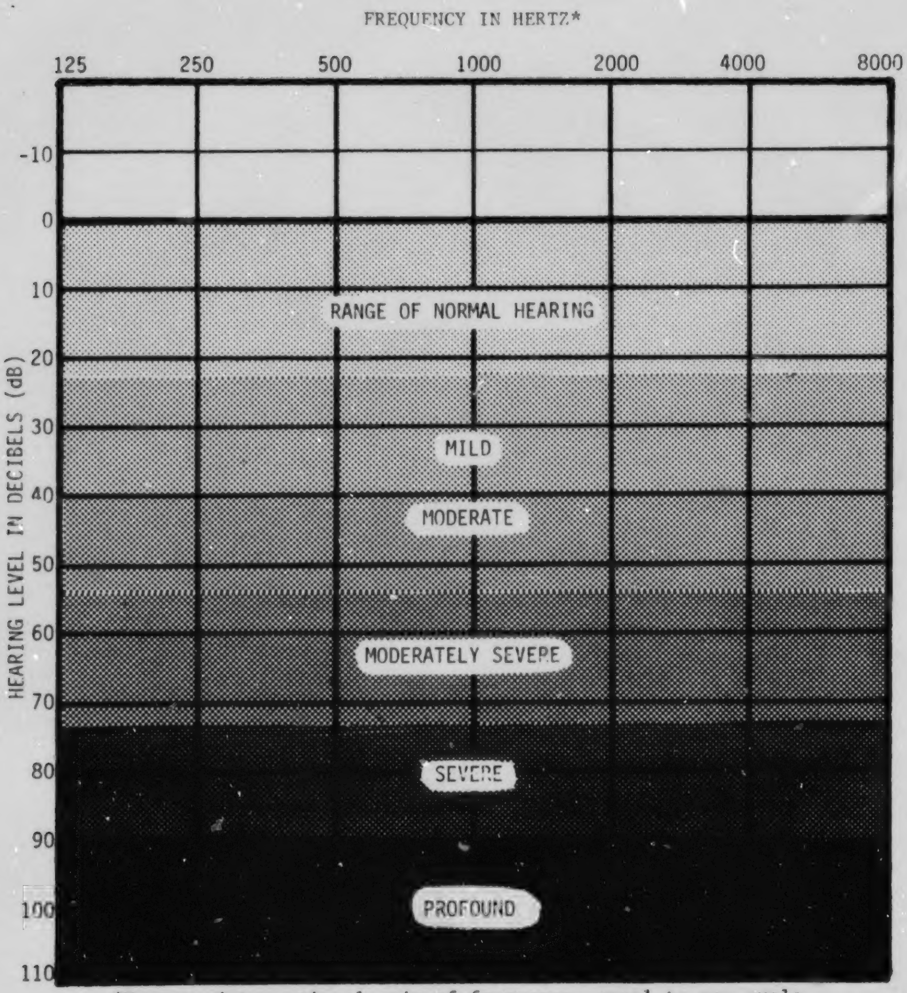
The second aspect of the hearing impaired student in relationship to his or her educational needs, is the age at which the hearing loss occured. If you have a student who was born deaf or became deaf before speech was learned, he or she would be classified as pre-linqually deaf. Since this student cannot hear the spoken word, he or she must learn to speak a language which takes several years of training. Therefore, his or her speech, if acquired, may be mechanical, monotonous, or unusually high-pitched. Your deaf student's speech or vocabulary does not necessarily indicate his or her strengths and capabilities, but it does mean that you need to become familiar with your student's method of communication. It is important to realize the speech or communication level of your student to know its origin.

The second possibility, in terms of speech acquirement, is whether your student became deaf after the age of five, that is, after language and speech have already been learned. This student would be considered post-lingually deaf. Although hearing handicapped, his or her speech is more developed. This does not mean that a student who is post-lingually deaf will communicate only by speaking, but it will explain why language and speech patterns differ among those defined as "deaf".

The last important area mentioned was whether the hearing loss was hereditary or caused by accident or illness. This is significant in understanding the relationship of deafness to intellectual functioning. Usually, an individual who is born deaf does not have any other complications to the central nervous system. Deafness does not imply brain damage, for deafness is caused by malfunctioning in the hearing process which may affect other functions such as speech. The fact that an individual cannot communicate as clearly as someone with normal hearing does not mean he or she is brain damaged. This is essential to keep in mind when you are teaching a deaf or hard-of-hearing student. However, if a student's loss of hearing occurred because of an accident or illness, there might be some degree of

Figure Two

AUDIOGRAM SHOWING RANGES OF HEARING LOSS



*Hertz: international unit of frequency, equal to one cycle per second damage to the nervous system which may affect a student's memory, orientation, intellectual functions, and judgment. These additional impairments, combined with a hearing loss, could further hinder learning potential. (Davis, p. 5, 1976)

INTERACTING WITH A HEARING IMPAIRED STUDENT

We have thus far defined several terms related to the hearing handicapped population. Having some background to the differences which do exist among hearing impaired individuals, we now need to move into the area of communicating with your hearing handicapped student. We will be discussing methods which will assist you in developing a relationship between you and your student which facilities learning. There is one basic principle in building a good rapport with your hearing impaired student: you need to discuss with this student what the best method is for communicating with each other. Doing this will give you an idea of how your student learns best, and it will give your student the feeling that you are concerned about establishing good communication. Asking your hearing impaired student to discuss, in private with you, his or her disability and an appropriate means of communication is not something that is embarrassing or offensive to him or her. An open discussion, where concern for a student's education and personal development is the main issue, is a good beginning for establishing a solid teacher-student relationship. Now we will begin to look at the various methods that the hearing impaired student can use to communicate, and evaluate your role in assisting in this process.

The various methods used by your hearing impaired student for communication with you could center on these areas or a combination of them: sign language, speech reading (lip reading), speech, using a hearing aid, and writing.

When discussing these forms of communication, we need to keep an important point in mind. Communication is more than words coming from our mouths. We communicate through facial expressions, gestures, and body movements. Language is an intricate form of transmitting information, and our "body language" can sometimes speak as loudly as our words. Your hearing impaired student will be watching you for all these visual cues as to the message you are conveying. This is also true for your hearing handicapped student in regard to his or her communication. Be alert to the facial and body messages that your student is giving. Does he or she look confused after a class explanation? Does he or she seem tense or nervous about class activities? In your work as a vocational instructor, you may have noticed that certain students were experiencing difficulties in your class just by noting their facial expressions during a presentation. This kind of awareness of the needs of both your hearing impaired and your hearing students is important in aiding effective learning.

Sign Language

One of the primary ways that some deaf individuals may communicate is through manual communication, called sign language. The most prevalent language used by the deaf is American Sign Language (Ameslan or ASL). It is comprised of well-defined hand and arm movements (called signs) which represent concepts. These combinations of hand and arm movements are not derived from the English language or any other spoken language. Amselan is considered the language of the deaf, with its own conceptual structure and meaning. A hearing impaired student's language usage may not be expressed in the form that hearing individuals are usually accustomed to, however this should not be seen as an indication of a student's abilities.

Another element of this manual form of communicating is finger spelling. Using hand shapes indicating each letter of the alphabet, deaf individuals spell letter-by-letter some of the words in their communicating.

A second example of a form of sign language is Singlish (Signed English), in which the student signs exact English. The message signed in this instance would be in complete sentences. Finger spelling is also used in this form of sign language.

Speech Reading

A student who has been trained in speech reading has the capability to comprehend and link together lip movements, facial expressions, and general body movements in order to obtain information. The primary focus of this skill is based on visual attention and concentrating in "reading" what a person is saying. This is a very difficult task for a majority of the hearing impaired population since only 30-40% of the English language can be seen on the lips of the speaker.

Speech

It is possible for some deaf individuals to use speech after several years of training. As mentioned previously, for a majority of the deaf population, English is a second language. Imagine yourself watching a German film with the sound turned off while you are trying to learn this language. This is similar to what a deaf person, having never heard how words sound or the pitch of a voice, must experience when trying to learn how to speak. Some deaf individuals are more easily understood if they become deaf after the acquisition of speech than someone who was born deaf. A deaf person, since he or she cannot hear himself or herself speak as someone with normal hearing, is unable to automatically control pitch or tone. It may be difficult for you to understand your deaf student when you first begin interacting. However, as you and your student become more familiar with each other, you will begin to notice that you are able to understand him or her better. If your deaf student communicates by speech, encourage him or her to do so in the class. This will enhance his or her educational and personal development.

Writing

This method can be very time-consuming, and it usually involves a one-to-one interaction. If you have a deaf student who only signs and has difficulty speech reading, one method of communication consists of writing notes to each other. A deaf student may write in incomplete sentences, or his or her grammar may not be up to the same level of your hearing students, but once again these tendencies do not indicate intellectual ability or potential. Sometimes, writing key words on a sheet of paper helps to facilitate a conversation. It may be that you and your hearing impaired student, even if he or she does use other methods of communicating, may write notes to clear up any confusion or to emphasize key words and concepts that you are teaching.

It should be emphasized that you may have deaf students with advanced vocabulary or writing skills comparable to your hearing students. Each deaf student has his or her own unique capabilities, and differences among this population in terms of their abilities must be recognized. Early childhood experiences in the home, as well as formal education, play an important role in the present level of your deaf student's skills.

As noted, various methods of communicating can be used individually or simultaneously. Two of these methods are total communication and aural/oral communication.

Total Communication

Total communication involves the use of speech, signs, finger spelling, speech reading, and facial expressions. A deaf individual using this mode of communication is encouraged to use all means of communication, including speech while signing.

Aural/Oral Communication

Aural/oral communication involves the use of speech, speech reading, and auditory discrimination when communicating. A deaf student trained in this mode of communication will typically not use sign language or finger spelling.

You may have two profoundly deaf students in your class, one using Total Communication, the other Oral Communication. In addition, you may very well have a student who is hard-of-hearing, who does have some auditory ability, but chooses to communicate in sign language. This only emphasizes the need for you and your student to work out what his or her most comfortable means of communicating to enhance learning.

Hearing Aid

A hearing aid is a device worn by an individual experiencing a hearing loss, regardless of the degree of impairment. It is essentially an amplifying system that increases the volume of sound in the user's ear. The system begins with a pick up microphone that responds in proportion to the sound that strikes it. This impulse triggers a change to electrical variations, which are then amplified. These are translated by loud speaker components into physical movements that carry to the listener via a custom fitted mold, called an air conductive aid, worn in the ear. (Maloney and Weisberger, 1977, p. 13)

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Hearing aids are usually categorized by where they are worn on the body. The hearing aid described above is worn in the ear. A hearing impaired student could also wear a hearing aid on the mastoid bone (temporal bone behind the ear), which is called a bone conductive aid. These are just two of the types of hearing aids your student could wear. The kind of hearing aid a student will use depends on the nature of his or her hearing loss and what best enhances his or her auditory skills.

A hearing aid does not correct the hearing loss. These particular aids help only in amplifying sound to enhance an individual's auditory skills. This means that the hearing aid does not distinguish sounds; it amplifies all noises around the hearing impaired student. Many individuals wearing a hearing aid cannot differentiate background noises from voices. If a hearing impaired student is around a great deal of noise, for example, in a machine shop, the student may very well turn down his or her hearing aid, since all noises are amplified. Therefore, hearing aids do not assist a hearing impaired student to hear as someone with normal hearing; they only facilitate in the total communication process.

In conclusion, remember these points as they could prove beneficial to a student who is using this kind of aid:

1. Stand within close range to your student when talking. Hearing aids have a limited range of pick-up.
2. Nonauditory cues can be used to emphasize your verbal instruction (hand gestures and facial expressions).

3. Unnecessary background noises should be limited as much as possible; noise is the biggest problem for hearing aid users since the hearing aid amplifies sound indiscriminately.
4. When talking with your hard-of-hearing student, speak slowly in order to give him or her time to absorb the information.
5. When talking to your hearing impaired student, face him or her directly and make sure you have his or her attention before speaking. This gives your student a better chance of understanding your message through facial expressions and gestures.
6. If a student's hearing is better in one ear, he or she should be seated so that the better ear is toward the place where most of the conversation originates. (Maloney and Weisberger, 1977, p. 13)

WORKING WITH AN INTERPRETER

Imagine yourself in a foreign country, where you are totally unable to communicate with the people around you. Perhaps you have gotten some of your messages across with gestures and drawings, but essentially very little communication has occurred. Finally, you are able to find someone who speaks your language and can interpret your message to those around you. This is, in a sense, the role which the interpreter in your class will perform when you have a hearing impaired student who communicates through sign language or speech reading. This section concerning interpreters is related to the communication section which was just covered. However, the importance of working with an interpreter is so critical in providing the best educational opportunities for your hearing handicapped student that it will be covered in its own section.

There are two distinct methods in which interpreting can be done. A Manual Interpreter is someone who has been trained in the art of changing the spoken word into the language of signs and vice versa. An Oral Interpreter is someone who is trained in presenting someone's spoken words, with or without voice, and with natural lip movements for situations when increased visibility is needed for individuals who speech read. Rewording for a clearer understanding of what is being said, is often times done by an Oral Interpreter.

In the past, interpreters were generally hearing children of deaf adults. However, with increased awareness of the deaf and needs, there has been a movement to train more individuals in this art. At present, interpreters must meet professional standards in order to be employed. (Milligan, 1979, p. 4) Each state should have a local Registery of Interpreters for the Deaf, consisting of those professionals in the area who are trained to assist you in your class. Your state vocational rehabilitation office can be of help to you in locating an interpreter from this register. If, for some reason there is difficulty in finding a local registery in your area, you can contact the national office for assistance at the following address: Registery of Interpreters for the Deaf, Inc., P.O. Box 1339, Washington, D.C. 20013. The school's guidance counselor, special needs coordinator, or vocational rehabilitation counselor will help arrange for an interpreter in your class.

The first and foremost reason that an interpreter is present in your classroom is to facilitate communication between the student and the vocational instructor. As the instructor of the class, you are still very much responsible for educating your students and presenting your materials in what you determine as the best learning mode for your students. The interpreter is not there to teach your class nor to critique your teaching; he or she is there to assist in the communication process between you and your hearing impaired students. In order to learn how to work with an interpreter and how to work with your student aided by the interpreter, let's start by discussing styles in building a professional relationship with the interpreter in your classroom.

When you know that you will have a hearing impaired student in your class and that an interpreter is needed, it is best to establish a meeting time with the interpreter before class begins. At this time, you may wish to discuss necessary arrangements so such decisions can be made as where the interpreter will stand so he or she can be seen by the student and to cover technical terms which may be used in your course. In addition, it is extremely important to discuss what can be done in case the interpreter or the instructor cannot attend a particular class. Clear guidelines need to be worked out in order for the hearing impaired student to receive maximum benefit from your class. The following precautions may assist if this situation should arise:

1. The instructor and the interpreter should exchange telephone numbers so, when a problem arises, ample notification can be given.
2. If possible, the instructor should try to brief a substitute teacher as to the services the interpreter provides in the class.
3. If the interpreter is able to give sufficient notice of absence, a substitute should be arranged for by an administrator in your school. However, if ample time cannot be given, the instructor should arrange to do more blackboard work for that day and have the deaf student sit near good notetakers or have notes made available to him or her after class. (Luke and Donnels, p. 16, 1974)

The role of the interpreter, for all practical purposes, is to be your voice to the deaf student. Thus, the interpreter is a mode for communication. It is his or her responsibility to inform the student of everything you say in class. This means, literally, everything you say. It is important to remember that when you are instructing a deaf student, you speak to the student directly, as if the interpreter were not there. It is extremely frustrating to a deaf student when an instructor talks as if the deaf person is the third person. For example, it is best to instruct your deaf student in the same manner you would your regular hearing students: "John, this particular problem was done incorrectly due to a mistake in your addition." Do not instruct your deaf student as if he were the third party involved: "Tell John that this particular problem was done incorrectly due to a mistake in his addition." Talking indirectly to the student gives him or her the feeling that he or she is not a part of the classroom situation and that the direct communication is to the interpreter and not the student.

Let's examine a few more points which will assist you in developing a good working relationship with your interpreter:

1. The interpreter will work closely with you, but should not be expected to take attendance, to teach class materials, to discipline the student, or to see that the student is in class.
2. The interpreter will need to adjust your pace of instruction and at times it will be necessary for you to adjust to the pace of the interpreter. Usually, the interpreter will ask you either to stop momentarily and repeat, or to slow down. This is to insure that the hearing impaired student receives your message in full. (Gallaudet College, n.d.)

3. Technical or unusual words should be spelled by you for the interpreter. Many technical words will need to be finger spelled by the interpreter. Jotting down these words on the blackboard or on a handout can help the hearing impaired student in understanding technical terms and will also assist the interpreter in his or her work. This would probably benefit hearing students as well in their understanding.

4. Interpreters are ethically bound to interpret everything you say in class. If you need to discuss some changes in teaching or other arrangements concerning the hearing impaired student, this is best done in a meeting before or after class.

5. Typically, the interpreter will stand either to your left or to your right. This enables the student to maintain eye contact with both individuals and helps in establishing a better student-instructor rapport. (Gallaudet College, n.d.)

6. When using an overhead projector, slides, video tapes, and/or films, it is sometimes necessary to reduce or turn off classroom lighting. In such situation, it is important to provide a small lamp to focus on the interpreter while discussion or explanation takes place. (Gallaudet Collete, n.d.)

7. Wherever the interpreter stands in your classroom, he or she must be in good lighting to insure that the hearing impaired student can see.

Now that we have covered some points in establishing your relationship with the interpreter, let's look at some important considerations for establishing a good teacher-student relationship through an interpreter.

1. It is important for you to try and establish as much communication as possible with the student without the interpreter. Do not depend entirely on the interpreter for interacting with your student. One of your goals in vocational education is to assist your students in developing independence especially for employment purposes. You need to assist the hearing impaired student in developing communication with hearing students so that, in the future, this student is prepared for independence in employment without the constant aid of an interpreter.

2. When a hearing impaired student has done well in class, tell him or her directly. All information should be directed to the hearing impaired student (for example, a change of class or field trip) in order that the interpreter does not become a go-between for you and your student.

3. If you are having group discussions, you should arrange to have seating in a semi-circle, if possible. This allows the hearing impaired student to see who is talking. It is important that

the class realizes that only one person can talk at a time, in turn. This will help facilitate participation by the hearing handicapped student. This procedure for talking will assist the hearing impaired student even if the group cannot form a semi-circle. By allowing only one person to talk at a time, your hearing impaired student can follow who is talking and what is being said.

4. There may be times when a hearing impaired student wishes to speak in private with you. These conversations should take place before or after class. The hearing impaired student should decide whether he or she wants an interpreter during this conference and if so, whether it be the regular interpreter in the class or perhaps another interpreter if available. The interpreter is always a neutral party. However, at times a hearing impaired student may wish to have someone who may not know him or her quite as well as his or her regular interpreter. It is important for you to be sensitive to the needs of your hearing handicapped student and to let him or her indicate who he or she would like to have present during a private discussion.

TECHNIQUES WHEN INSTRUCTING YOUR HEARING IMPAIRED STUDENT

Thus far in this chapter we have been examining in detail what is a hearing loss and methods for communicating with your hearing impaired student. It is important to keep in mind that we are in the process of becoming more familiar with someone who has the same wants and desires as you or I, a person with strengths and abilities; but a person who must learn through different modes than we. Therefore, your hearing impaired student needs to be treated as an individual, unique in his or her abilities, goals, and dreams. When thinking about the hearing impaired student, the degree of hearing loss will be an important factor to consider in assisting your student. It is important to consider students individually and not treat all your hearing impaired students as if they were deaf or as if they all had slight hearing losses. Remember that by getting to know your hearing impaired student and beginning to understand his or her best method for learning and communicating, you will learn what needs to be done in your classroom. It is not that you will need to rewrite all the curricula you use for your class or that you will need to change everything completely. What we have discussed are interpersonal and teaching skills for good communication. The various techniques we have covered could greatly enhance your hearing impaired student's progress in class, as well as the progress of hearing students. The standards for quality and your requirements for your course have not changed, but perhaps some alteration in your manner of presentation may occur. In order to examine this issue in more depth, the next section will deal with examples of effective techniques which instructors have used in their classrooms.

Before we conclude this section, it might be helpful to list reminders or points which are basic courtesies when a teacher interacts with a hearing impaired student. These points will help supplement what we have covered previously or perhaps serve as reminders when communicating with a hearing handicapped student.

1. Have the student's attention before speaking. A deaf student cannot hear a call to attention, and may need a tap on the shoulder, wave, or other signals to catch his or her eye.
2. Speak slowly and clearly, pronouncing each word, but without exaggerating or over-pronouncing. Exaggeration and overemphasis distort lip movements, making speech reading more difficult. Try to speak clearly without force or tension. Use short sentences rather than long sentences.
3. Look directly at the student while talking. Do not cover your face with your hands or books.
4. Do not turn your back to the student while talking or explaining something on the blackboard.
5. Try not to move around the room while carrying on a discussion. It would be best to select a place in the room where the hearing impaired student can see you easily.
6. Do not stand in front of windows while speaking. The light will shine in the student's eyes and he or she will not be able to see your face. The light should shine on your face and not in your student's eyes.
7. When speaking to a hearing impaired student, try to maintain eye contact. Eye contact establishes a feeling of direct communication. Maintain eye contact with your student even in the presence of an interpreter.
8. Try to rephrase a thought rather than saying the same words over. Sometimes particular combination of words are difficult to speech read, so repetition of the same phrase may be frustrating

to your student if he or she cannot understand. Always use complete sentences when talking to a hearing impaired student. Do not just repeat one or two words.

9. The hearing impaired student must take in a majority of information through visual cues. Thus, he or she may fatigue more quickly than your other students. Make sure to check occasionally if your student is still understanding the material. Do not take a nod of the head as confirmation. Many times a hearing impaired student will say he or she understands when he or she really does not. A few quick questions regarding the material covered are a good way to see if, indeed, the student is understanding the course work. (The instructor may witness periods of inattentiveness due to periodic rests from fatigue.)
10. Encourage your hearing impaired student to read ahead on class material in order to become more familiar with topics that will be discussed in class.
11. Keep facial expressions and gestures appropriate and consistent with the verbal message that you are giving.
12. Attempt to keep the noise level down in the classroom, as much as possible, to allow the hearing impaired student maximum use of his or her auditory skills. This is especially important during those times when announcements or assignments are being given. Write out any important information to insure the hearing impaired student receives the information.

Ideas for methods of working with a hearing impaired student and his or her interpreter were compiled from several different sources. Materials were collected from such resources as the Communication Center of the National Technical Institute for the Deaf, St. Paul Vocational Technical Institute, Gallaudet College, the Model Demonstration Program, and literature located in libraries. For further reading on areas covered in this section, please see the reference and resource lists located at the end of this chapter.

PART THREE

EXAMPLES OF SUCCESSFUL CURRICULA MODIFICATIONS FOR HEARING IMPAIRED STUDENTS

INTRODUCTION

As a vocational instructor, you will be primarily concerned with sharing knowledge with students to prepare them for the world of work or for further training. You can instruct your students through various teaching modes. You might, for example, lecture on a particular subject and then demonstrate a point through a "hands-on" experience. Perhaps you incorporate frequent visual aids such as filmstrips, overhead projector, or blackboard work into presentations. Whatever method you may choose, it is important to assess from time to time whether your teaching style is indeed effective in reaching your students. Evaluating your approach for instruction will be a major consideration, especially when working with a hearing impaired student. This does not necessarily mean changing or altering the quality or quantity of what you present. However, it does mean giving thought to the ways in which a hearing impaired student can receive your message.

Your approach for presenting materials is built upon the methods for effective communication previously discussed. By developing techniques for interacting with your hearing impaired student, for example, working with a deaf student and his or her interpreter, you will enhance the learning of this student. Yet, another vital aspect in the process of teaching a hearing impaired student is your determination of what teaching modes you will use in presenting your materials. Perhaps you will use more visual cues with your explanations rather than just presenting the subject verbally. You might incorporate more "hands-on" experiences into lectures or give more handouts to your class to reinforce technical terms which will be discussed. This kind of planning can assist the hearing impaired student in completing class requirements.

What we are talking about is curriculum modification or reasonable accommodation to enable a hearing handicapped student to complete your course successfully. This section will deal with actual examples from vocational educators who have had hearing impaired students in their classrooms. These methods will give a clearer picture of what effective techniques other instructors or support services staff have developed for reaching the hearing impaired student. The section has been divided up into four main areas. These areas include: methods to assist you in getting your message to your student verbally, materials to allow your student to manually work on techniques taught or to visually reinforce your verbal instructions, equipment modifications to assist your student, and techniques to help you as an instructor evaluate your hearing impaired student's performance.

METHODS FOR REINFORCING VERBAL MESSAGES

To insure that the hearing impaired student in your vocational classroom is able to follow lessons, demonstrations, or discussions, with other class members, several techniques can be used. The possible resources available to you are the interpreter, the notetaker, the tutor, or the buddy system.

Interpreter

Kanda (1979) an interpreter for the Texas State Technical Institute in Waco, Texas, suggests the following technique for instructors when they give classroom demonstrations.

A deaf or hard-of-hearing student has great difficulty in watching an interpreter explain what the instructor is demonstrating while the instructor is showing a procedure to the class. The deaf student must simultaneously watch the interpreter and try to concentrate on the demonstration. This appears to be one of the more difficult problems with which a hearing impaired student must cope in a vocational class. In this situation, the instructor needs to explain verbally what he or she will be demonstrating. After giving step-by-step instructions, the instructor then demonstrates the procedure, keeping verbal explanations to a minimum during this time. It is important for the instructor to explain a procedure verbally, then demonstrate, and, finally follow up with a question and answer period.

This allows for the hearing impaired student to follow all of the steps and does not force him or her to observe two things at once.

Lausten (1979) a phototypesetting instructor for Hennepin Vocational Technical School in Minneapolis, Minnesota, describes the following technique to enhance the teacher's message for a hearing impaired student.

When instructing a deaf student through an interpreter, always direct statements to the student. Do not talk to the interpreter because the message then appears to be relayed to the student as a third party. This creates unnecessary "static" in the instruction and can frustrate your hearing impaired student to the point that he or she becomes unable to hear your message at all. Remember to direct all comments to the student; the interpreter is only a vehicle through which you and your student communicate.

Notetakers

Notetakers are used in the classroom to assist the hearing impaired student in watching what materials the instructor and/or interpreter are presenting. It is difficult for a deaf or hard-of-hearing student to watch an instructor and to take notes at the same time. Several approaches can be taken in establishing a note taker in your class. This service could be worked out by the guidance or supportive services department in the school. However, it is important to be aware of the responsibilities of a notetaker in order to monitor the effectiveness of this service in your classroom.

Sullivan (1979) an interpreter for the Western Wisconsin Technical Institute in LaCrosse, Wisconsin, discusses the role of the instructor in using a volunteer notetaker in the classroom.

In some schools, the selection of a notetaker takes place in the classroom. Ms. Sullivan believes that the student should ask the class who would be willing to be a notetaker so he or she can concentrate visually on what is occurring in class. It is usually a good idea to select a student who is doing average work in the class since their notes are more complete than the brighter student who does not need as many notes to process information crucial to the deaf student. A few days after the student has been selected, the deaf student, interpreter, instructor, and notetaker should meet briefly to evaluate how the notetaking has been going and whether the deaf student is benefiting from these notes. This provides an opportunity to see if the class notes are adequate.

Copies of the notes can be made by two methods. The first is by a specially made carbon paper developed through the National Technical Institute for the Deaf in Rochester, New York. It can be purchased through The Bookstore, Rochester Institute of Technology, One Lomb Memorial Drive, Rochester, New York 14623. The deaf student who uses this paper will provide it to the notetaker, who slips it under his or her own notebook while taking notes. The second method is for the student to xerox a copy of his or her notes and give them to the deaf or hard-of-hearing student after class. The notes should be given to the hearing impaired student as soon as possible to enable the student to review what has happened in class. A three day delay is too long for a hearing handicapped student to wait to receive class notes.

Fordyce (1979) Coordinator for the Handicapped Student Services of the Charles Stewart Mott Community College, Flint, Michigan, describes the following procedures for recruiting and training notetakers.

Bulletins and posters are placed around campus requesting volunteers as notetakers for special needs student. Typically work-study students are recruited for the position. An interested student who is interviewed and hired will attend a session on notetaking before classes begin. Ms. Fordyce suggests that another group meeting be held a few weeks into the semester to enable notetakers and those students who receive the notes to discuss any problems. The group setting provides an atmosphere of open discussion and is not threatening to the notetakers or the hearing impaired students. Staff members monitor notetakers throughout the semester. Notetakers are paid the minimum wage.

The following guidelines are given to the students when they train to become notetakers for a hearing impaired student:

1. Make copies of notes for each student, yourself, and the tutor.
2. Write legibly.
3. Date the first page of your notes for each class period. Number each page.

4. Record all information about assignments and the dates due.
5. Elaborate as much as possible within the notes, particularly on definitions of unfamiliar key words, phrases, and difficult concepts.
6. Write in sufficient detail so that the notes have meaning without the need for additional explanation.
7. Organize the note content in logical sequence. Use headings and subheadings where possible.
8. Identify and record all principal points.
9. Record all references and special notices accurately and in detail.
10. Record secondary points.
11. If you are not certain of the point the instructor is making, ask for clarification. It is unlikely that the hearing impaired student got the point either.
12. Ask the hearing impaired student, the tutor, or personnel in supportive services how to make the notes more useful.
13. Remember that the hearing impaired student has no permanent record of the lecture without your notes. Therefore, take notes in more detail than you would if you were not sharing your notes with a hearing impaired student.

Notetaking In General

Many times a deaf student will take the initiative in finding a fellow student to take notes for him or her. The role of a vocational instructor is to assist a hearing impaired student if he or she is getting inadequate class notes. You could help the student by referring him or her to resources in your school who organize notetakers, or by talking with a student in the class, in the presence of your hearing impaired student, about notetaking.

The ultimate goal in notetaking is to enable the hearing impaired student to have materials he or she can refer to after each class. Your role is to assist in this process of effective communication by insuring that the student has a means of receiving your verbal instructions.

Tutors

To assist the hearing impaired student in understanding classroom materials, tutoring programs have been established as a support service. For this service to be meaningful for a hearing impaired student, close communication between the tutor and the instructor is essential. A hearing handicapped student could refer himself or herself for tutoring or the instructor could suggest areas in which tutoring would be beneficial.

Here are some guidelines used for tutors at the hearing impaired program at Stewart Mott Community College, Flint, Michigan. These suggestions will give you an idea of your relationship to the tutor, as well as the student's reponsibilities.

1. The tutor should make it a point to consult with the instructor to find what the student's problem areas are, and then use this information as the main emphasis of the tutoring session.
2. The tutor should encourage the student to come to his or her tutorial sessions with questions and problem areas already determined. If the student has doubt about what exactly his or her problem areas are, this should be determined between the tutor and the student, during the first few tutoring sessions.
3. It should be made clear to the student, from the first tutoring sessions through the last, that it is not the tutor's responsibility to write, do homework, or do any in-depth study of the course work itself. This is the student's responsibility.
4. The main emphasis of a tutoring session should be an additional exlanation of unclear concepts and new vocabulary or a test review.

Tutoring Services In General

The tutor is a supportive service offered to the student to help him or her with your course work. Communication needs to be established so the tutor knows what material will be covered and what to reinforce during sessions with the hearing impaired student. In some schools, the interpreter is also the tutor. Perhaps a special department is designated for tutoring services, with individuals hired only to work as tutors. Additional possibilities for tutoring services can be obtained through a special education teacher, a resource room teacher or a teacher's aide.

The Buddy System

The buddy system can be incorporated in your classroom through volunteer cooperation. Generally this system is developed for a hard-of-hearing student who needs additional support to insure that he or she has heard the instructor or other classmates correctly. In the buddy system, a student is assigned to sit next to the hearing impaired student. He or she writes down key words during a discussion, shares notes during a lecture, or repeats important information such as announcements of field trips, test dates, or assignments.

The difference between the buddy system and notetakers or interpreters is that the system is informal and is used as an aid to fill in any information gaps the hard-of-hearing student may experience. This support is not intended to help the student complete your course by itself, but it can be useful in insuring that the hard-of-hearing student has assistance in case he or she cannot hear part of a verbal message.

METHODS FOR REINFORCING LEARNING THROUGH VISUAL CUES

In vocational education, your students needs to learn the procedures or steps involved in the tasks they study. For example, a student in a janitorial class needs to know the steps involved in cleaning a restroom--how to measure chemicals, how to find necessary equipment, where to start cleaning, and how to clean up the equipment after completing the job. It is essential, in most cases, for a student to learn the terminology concerning his field as well as various procedures necessary for obtaining employment.

In teaching a hearing impaired student the skills of his or her vocation, two critical factors need to be considered when discussing curriculum materials: 1) the language usage and 2) the reading level of the course work. For a deaf student, English is for all practical purposes a second language. This is especially true for those individuals born deaf because the deaf student has never heard a language with its grammar, sentence structure, and word usage. This must all be learned through years of practice. What is natural for a hearing individual who depends heavily on auditory skills in learning a language, can be slow and difficult for the deaf student. When evaluating your hearing impaired student's reading and writing abilities, recognize that most of these students will not be at the same level as your hearing students in vocabulary development and reading skills. However, this is not always the case: some students become deaf after they have acquired language, some are hard-of-hearing. Regardless of language acquisition, a hearing impaired student will depend heavily on visual cues since his or her auditory skills are weakened.

This dependence on visual cues means that your curriculum materials need to be as visual as possible. Also technical terminology needs to be clearly defined before each procedure or step can be learned. In the case of a deaf student working with an interpreter, the language of the curriculum materials will be translated into concepts so the student will understand what is being taught. Therefore, an interpreter will greatly facilitate this process of the student's receiving and understanding the material. Yet, there are additional materials which can be used to reinforce learning through more visual cues, where the written instructions are minimal and a strong dependence on pictures are used. Also, in some of the examples given, the student is able to have a "hands-on" experience in order to understand the methods you are teaching.

Written Curriculum

The following curriculum illustration was developed through the State of New Jersey, Department of Education in the Division of Vocational Education and Career Preparation. The author is James Carrick, horticulture instructor for the Marie H. Katzenback School for the Deaf. The workbook is entitled Planting Growing Caring. The text was prepared for deaf students enrolled in an Ornamental Horticulture program. There are several important components of this curriculum: 1) objective of each chapter is clearly stated, 2) terms are defined before each step is learned, and 3) pictures are used to reinforce written statements. (See Example One at the end of this chapter.)

Flipcharts

Ryan (1980), Curriculum Developer for Project Serve, 916 Vocational-Technical Institute in White Bear Lake, Minnesota, describes the flipcharts they have developed and how they could be used in the classroom.

Flipcharts can be very helpful to a vocational instructor in reinforcing the instructional materials being taught. Essentially, the flipcharts developed by Project Serve are in booklet form, consisting of a picture illustrating a procedure to be learned. Written instructions of how to do the steps are below each picture. The written instructions are very clear and concise; however the main emphasis is on the picture, allowing the student to use it for a better understanding of the procedure.

Flipcharts have been developed by this institute in such areas as auto parts, dental assisting lab, food service, cosmetology, and machine technology. These are just a few examples of areas which flipcharts have been developed.

"Hands-On" Materials

Osborne (1979) Math Consultant for the Averill Career Opportunities Center in Saginaw, Michigan, created two felt boards for an electricity class. The boards cover a single pole switch and three-way switches.

"Hands-on" experiences are also crucial in helping the deaf or hard-of-hearing student to learn concepts and techniques. These exercises assist a student in learning electrical wiring before they work with actual circuit boards. The felt boards are an excellent tool for instructors teaching hearing impaired students. (See Examples Two and Three at the end of this chapter.)

Ms. Osborne has also developed kits to reinforce vocabulary and/or math needed to learn a concept. The example cited in this chapter is a kit developed for a building construction class. A hearing impaired student working with this kit can review materials covered in class using visual and tactile cues. These kits can be developed for a variety of vocational areas to give students further practice with the curriculum material. (See Example Four at the end of this chapter).

METHODS FOR EQUIPMENT MODIFICATIONS

Several devices have been designed for deaf and hard-of-hearing students to work effectively and safely with equipment or machinery. The main objectives of modifications for machinery center on giving a deaf or hard-of-hearing student visual cues to assist in operating equipment or devices to enhance the sound; for example, on a telephone receiver so a hard-of-hearing student can hear a telephone conversation. Lights can be installed on a machine to indicate to a hearing impaired student that the machine is in operation. Lights have also been attached to bells, e.g. on a typewriter, so the hearing impaired student knows when to return the carriage.

Attachments for machinery can be developed using materials you may have in your classroom or can be bought through special equipment catalogs. Sources for funds to purchase these attachments vary among school districts. Some schools have state or federal funds set aside for such purchases. Two good sources to ask about obtaining attachments for equipment are your guidance or special needs department or possibly the Department of Vocational Rehabilitation.

Examples of modifications for equipment and machinery made by instructors and support services staff for hearing impaired students follows:

Amplifier for a Telephone

Brownson (1979) Special Needs Coordinator for the School District of the City of Holland, Holland, Michigan, arranged for a telephone attachment.

A hard-of-hearing high school student wanted training in a receptionist course. However, to complete this training the student needed to converse on the telephone. Thus, an attachment for the receiver was needed. Money was made available through a Special Needs Fund to rent an amplifier, enabling the student to hear on the telephone by adjusting the volume control. Ms. Brownson stated that the hard-of-hearing student was able to complete the course successfully due to the amplifier.

The amplifier used in this particular instance was rented through the telephone company in which the school paid a monthly charge. Amplifiers are also available through office supply companies and electronics or stereo shops. A possible source of additional information about amplifiers or other signalling devices is: Dr. Diane Castle, Telecommunication Specialist, National Technical Institute for the Deaf, Rochester Institute of Technology, One Lomb Memorial Drive, Rochester, New York 14623.

Light Attachment for the Typewriter

Garness (1979), a business education program head for Western Wisconsin Technical Institute, LaCrosse, Wisconsin, describes his design for attaching lights to standard typewriters. His plan has helped deaf and hard-of-hearing students to successfully complete his course.

The drawing below illustrates a device which helps the hearing impaired student determine when the right margin is reached on an I.B.M. Selectric typewriter (Figure Three). The switch is mounted on the frame of the typewriter and when the right margin bell rings the light goes on.

Figure Three

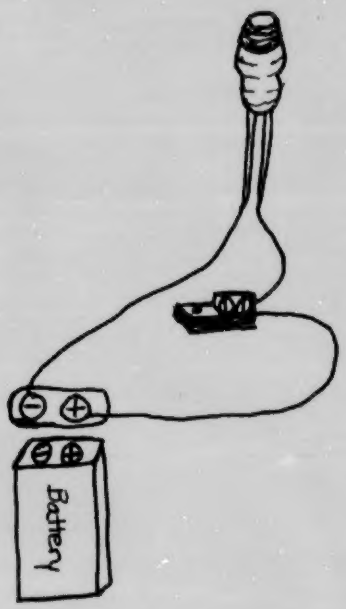
Typewriter Margin Indicator

Materials Used

Clip on clamp holder
9-volt battery
9-volt battery connector
Switch
Wire
Metal hanger strap
Bulb - #47 lamp
Bolt and screw

Description

This device helps the hearing impaired student determine when the right margin is reached on an I.B.M. selectric typewriter and when the right margin bell rings the light goes on.



Light for Interpreting During Films or Filmstrips

Sullivan (1979) interpreter for Western Wisconsin Technical Institute, LaCrosse, Wisconsin, suggested the following lighting arrangements when a film or filmstrip is being shown in class.

During the showing of a film or filmstrip, an interpreter can sign to a deaf student the material being covered. Since the lights are turned off during this time, a small lamp can be used to give enough light to illuminate the hands of the interpreter. The light does not distract other students from viewing the film. If a small lamp is not available, a large flashlight works just as well. Larger flashlights are powerful enough to give the necessary amount of light. It is an inexpensive and readily available piece of equipment to use.

TTY - Just For Your Own Information

Deaf individuals are capable of communicating by telephone through a special device called a TTY or a telephone/teletype communications system. A TTY has a keyboard like a typewriter and a print out sheet for typing and receiving messages. On the top of this machine is a coupling device for plugging in a regular telephone receiver. To use this machine, an individual attaches the telephone receiver to the top of the machine and types out a message. Each key has an electronic impulse which the TTY transforms into sound and sends over the telephone lines. On the receiving end, a similar unit receives the message and translates the tones to a written message. The TTY plugs into a standard wall socket and needs no special installment. (Vanstone, p. 13, 1979) Several styles are available featuring different methods for receiving the printed message. The TTY is predmoinantly used by deaf consumers and affiliated service agencies.

METHODS FOR EVALUATING PERFORMANCE

How well a hearing impaired student learns your material is a critical concern. We have examined ways in which a vocational instructor can communicate instructional materials that are needed by the student to complete the course work required. But what about the student's ability to give back to the instructor the information he or she has learned in class, for example, in a testing situation? Evaluating your hearing impaired student's performance should be done fairly and honestly, using the same standards as other students in the classroom.

What might change is the manner in which you evaluate the hearing impaired student. If the student is able to complete a task, but has modified the equipment to do so; evaluation should be at the same level as students without the equipment modification. The modification is only there to enhance the student's learning and is not a "crutch" if it allows the student to perform the needed tasks to complete your course as well as prepare him or her for employment.

HI

Two examples follow and may be helpful to you as a vocational instructor in testing situations. The use of an interpreter has enabled the instructor and student to work out a fair means of determining his or her performance.

Sullivan (1979), interpreter for the Western Wisconsin Technical Institute in LaCrosse, Wisconsin, discusses the following test situations:

A deaf student in a one year Mechanical Drafting course was able to perform the tasks necessary to complete the drawing class. However, his ability to take written exams was poor. The instructor worked out an agreement with the student, in which the student handed in extra drawing assignments which demonstrated knowledge of the materials covered by the written exam.

In another instance, Ms. Sullivan worked with the instructor of a deaf student and rewrote the examination so as the student could understand the meaning of each question and be able to respond appropriately.

The first example shows that by using a visual or "hands on" technique by handing in extra assignments instead of taking a written exam, the student is able to successfully complete the course. The second example illustrates that the interpreter can assist the student, who may have a varying level of verbal and/or language skill in comparison to the rest of the class, is able to complete the written exam through some modification.

The importance of evaluating students is to determine whether your students have learned the materials presented in class. Perhaps a hearing impaired student can take your written exams, but the concepts or ideas stated are inadequately phrased. The critical point to consider, however, is whether the techniques or steps are correct even if the sentence structure may be poor. For example, imagine you are the instructor for a welding class and you are testing students on safety procedures in the shop. The deaf student who took the test appears to know all the steps in safely handling equipment and good shop behavior; however, his sentences are incomplete and have several misspelled words. It is helpful to determine whether good language usage is necessary for successful completion of your course and in the job situation once he or she becomes employed. If knowing the important points and procedures for a job is more vital than clearly stating them in writing, your deaf or hard of hearing student may have the potential to complete your course successfully. Evaluating the language skills necessary for employment and determining your hearing impaired student's level of language skills development are two critical considerations when evaluating your curriculum materials and determining the best testing method.

SUMMARY

As can be seen by the curriculum examples given, several methods can be incorporated into your classroom when teaching a hearing impaired student. Establishing good communication with your student will help in building the kind of rapport needed where the learning and sharing of ideas can take place.

EXAMPLE ONE

Planting Growing Caring

Ornamental Horticulture

James Carrick, Horticulture Instructor
Marie H. Kutzenback School For The Deaf
Published by: Rutgers - The State University Press

GROUNDS MAINTENANCE

A NOTE TO THE STUDENT

LESSON #1 PRUNING
#2 SEEDING A NEW LAWN
#3 SODDING A LAWN
#4 FERTILIZING A LAWN
#5 WEED CONTROL IN A LAWN
#6 MOWING THE LAWN
#7 PLANTING BARE-ROOT TREES AND SHRUBS
#8 PLANTING CONTAINER-GROWN TREES AND SHRUBS
#9 PLANTING BALLED AND BURLAPPED TREES AND SHRUBS
#10 STAKING TREES
#11 USING TREE WRAP FOR PROTECTION
#12 FERTILIZING A TREE OR SHRUB
#13 MULCHING TREES AND SHRUBS
#14 WINTER PROTECTION OF TREES AND SHRUBS

GROUNDS MAINTENANCE

A NOTE TO THE STUDENT

Grounds maintenance means taking care of property around homes, campuses, office buildings, parks, golf courses, cemeteries, etc.

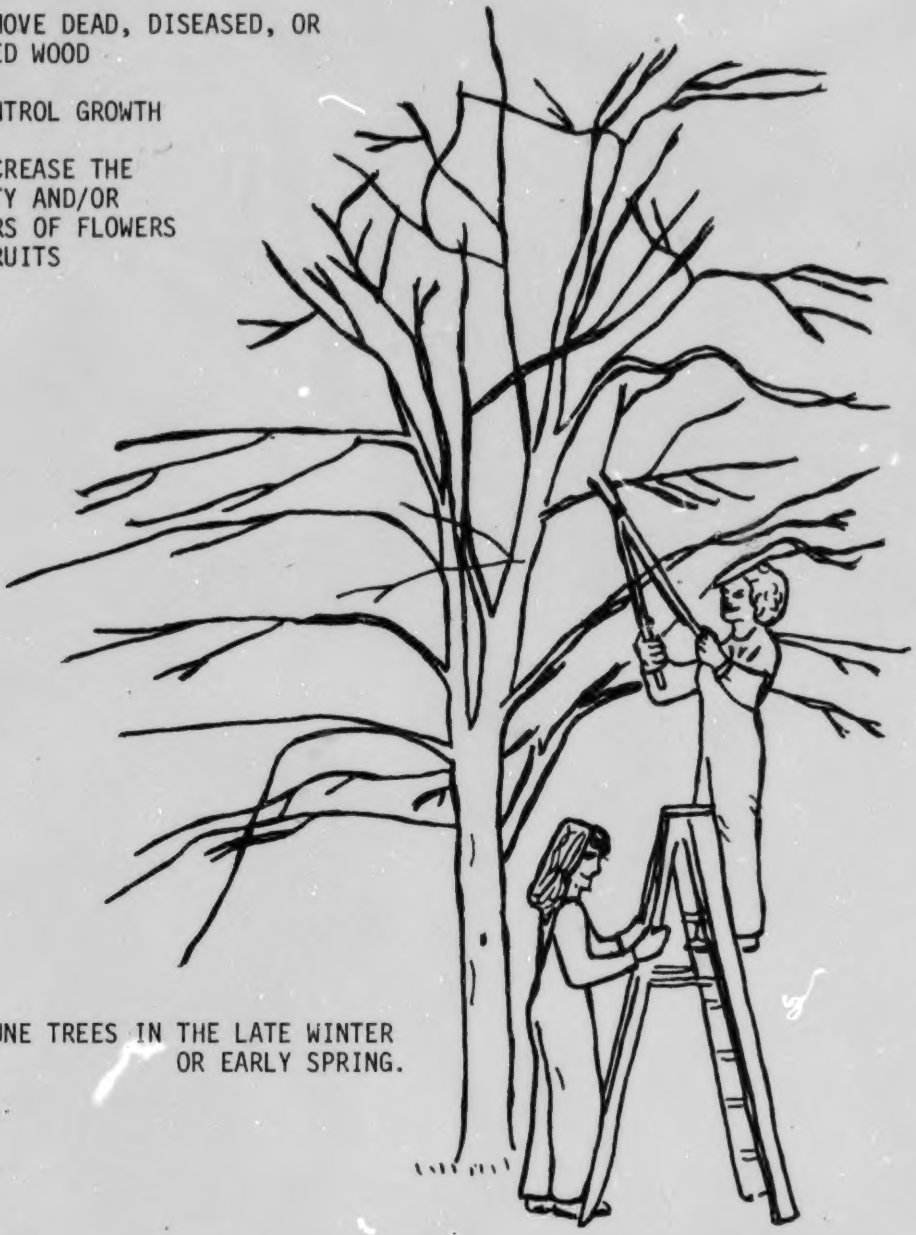
To maintain grounds properly, you must learn how to:

1. Plant trees and shrubs
2. Stake and protect trees and shrubs
3. Prune trees and shrubs
4. Seed, sod, fertilize, and mow lawns
5. Control weeds

OBJECTIVE: TO PRUNE TREES AND SHRUBS.

PRUNING TREES AND SHRUBS IS DONE FOR SEVERAL REASONS.

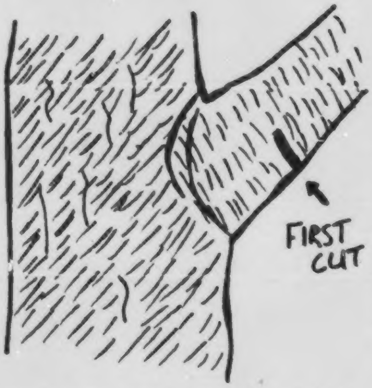
1. TO REMOVE DEAD, DISEASED, OR INJURED WOOD
2. TO CONTROL GROWTH
3. TO INCREASE THE QUALITY AND/OR NUMBERS OF FLOWERS AND FRUITS



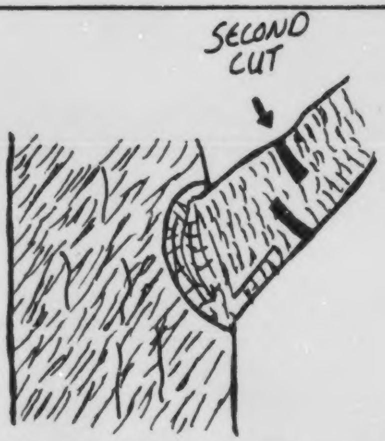
PRUNE TREES IN THE LATE WINTER OR EARLY SPRING.

PRUNING MATURE TREES

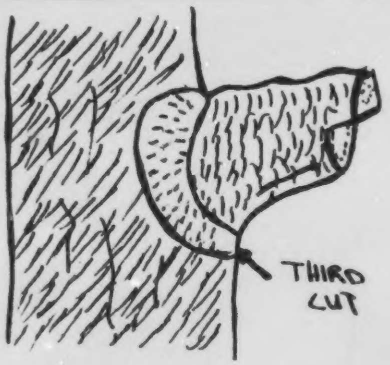
PRUNE LARGE BRANCHES OF TREES THE RIGHT WAY.



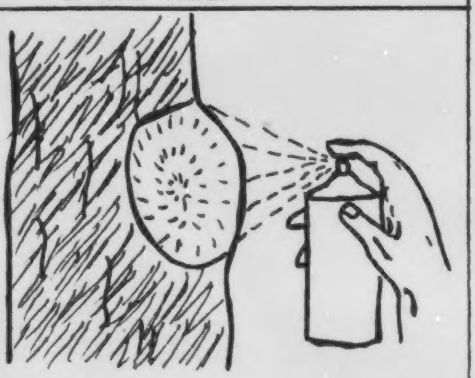
1. UNDERCUT THE BRANCH ABOUT 1 FOOT (12 INCHES) FROM THE TREE TRUNK.
2. CUT HALF-WAY THROUGH THE BRANCH.



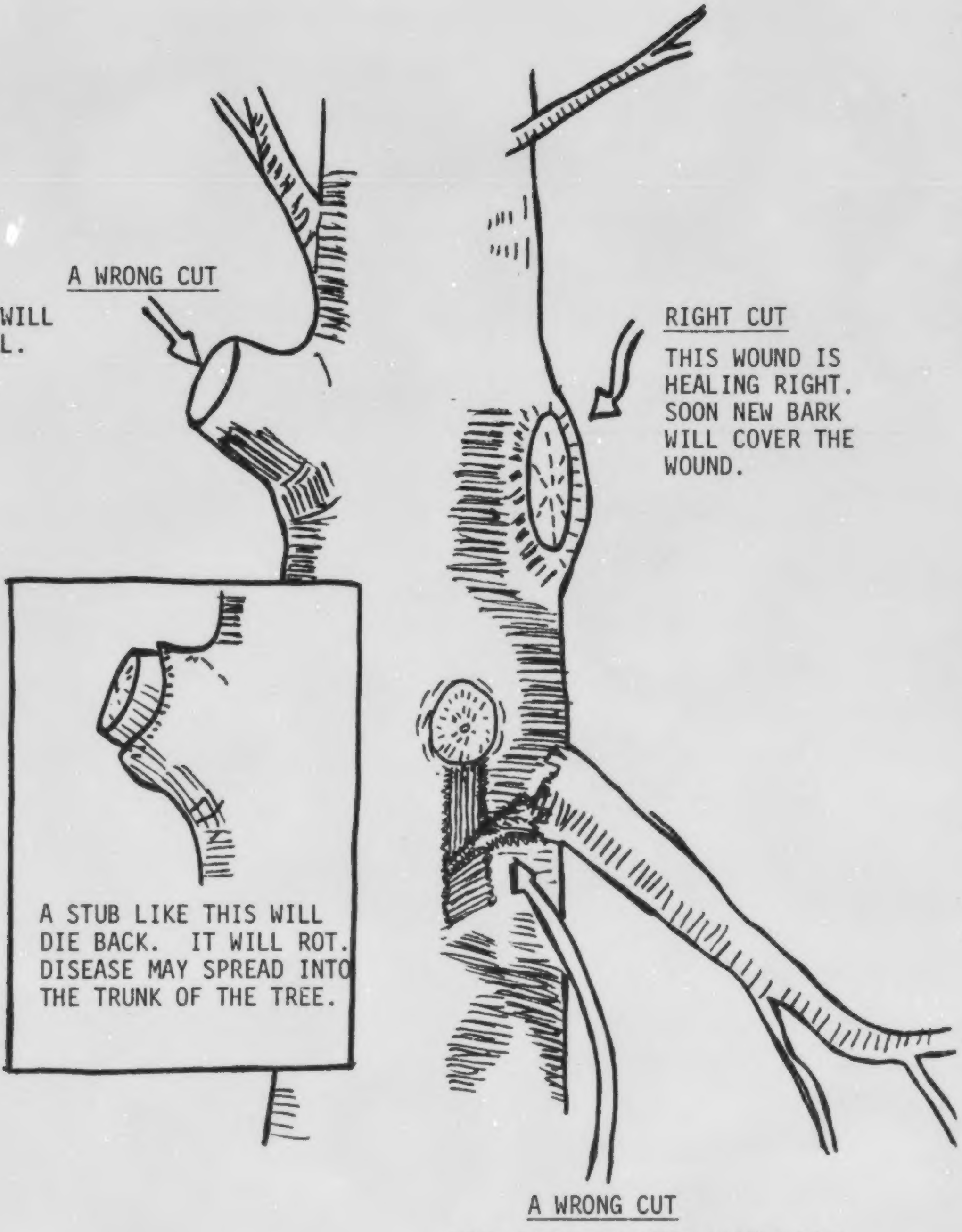
1. CUT 2 INCHES BEYOND THE FIRST CUT.
2. CUT UNTIL THE BRANCH BREAKS OFF.
3. THE BRANCH WILL BREAK OFF AND NOT DAMAGE THE REST OF THE TREE.



CUT AS CLOSE TO THE TREE AS POSSIBLE.



USE PRUNING PAINT TO PROTECT TRESS FROM DISEASE AND INSECTS.



A WRONG CUT

THE STUB WILL NEVER HEAL.

A STUB LIKE THIS WILL DIE BACK. IT WILL ROT. DISEASE MAY SPREAD INTO THE TRUNK OF THE TREE.

RIGHT CUT

THIS WOUND IS HEALING RIGHT. SOON NEW BARK WILL COVER THE WOUND.

A WRONG CUT

SOME BARK HAS BEEN RIPPED OFF THE TRUNK. THIS WILL MAKE UGLY SCARS ON THE TREE TRUNK.

EXAMPLES TWO AND THREE

Felt Boards Developed For Instruction on Electricity

Dorothy Osborne
Averill Career Opportunities Center
Saginaw, Michigan

Directions For Constructing Felt Boards

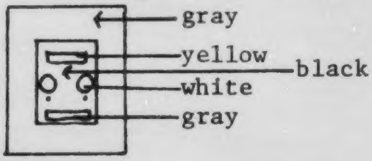
These 18" x 24" felt boards are used to teach electricity students to wire for a single pole switch and light or for a three way switch and light, with feed at the light or feed at the switch. Either the circuit breaker or the fuse box is used.

Black and red yarn are used for hot wires, white for neutral. The yarn is laid from terminal to terminal. There is a 6" x 9" envelope on the back in which the yarn is stored. Also in the envelope are diagrams on 3" x 5" cards showing methods of wiring. One correct way is shown on a single card. This makes it possible for a student to learn by himself. A student's "wiring" may also be monitored by another student or an instructor. If incorrect, it may be wiped off in a split second for another try. This reduces the time consumed in learning. When the correct wiring is demonstrated on the board, the student is ready to do the real wiring in the lab.

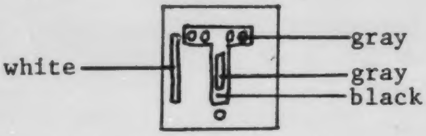
The board is light weight, portable, and easy to work on.

Material Used on Feltboard

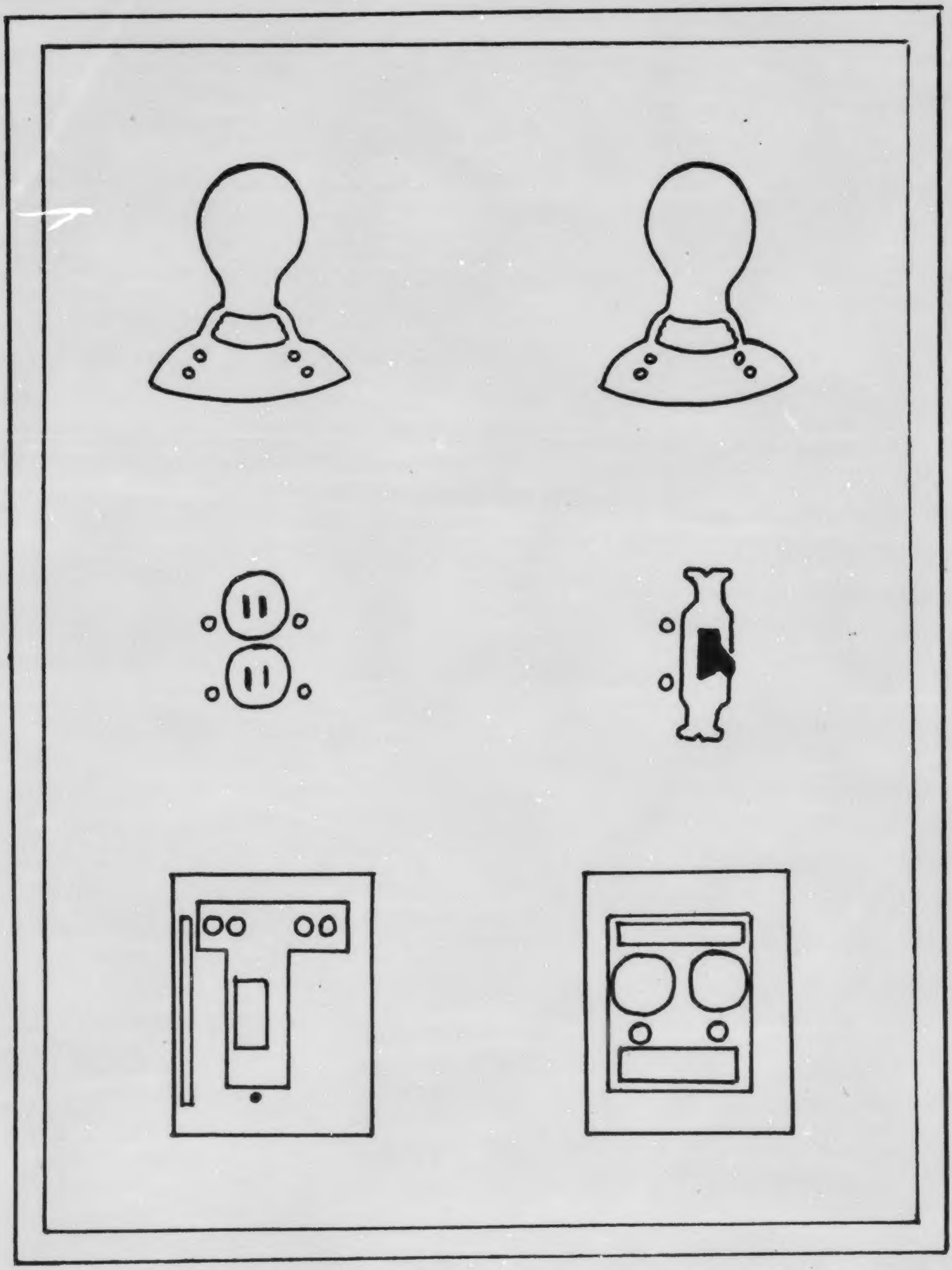
1. Pressed hardboard 18" x 24" x 1/4".
2. Cover with light blue felt (to the edge).
3. Apply border of 5/8" varnished screendoor molding.
4. Cut bulbs of white felt.
5. Cut metal base of bulb of gray felt.
6. Right side bulb terminals are yellow felt.
7. Left side bulb terminals are gray felt.
8. Outlets are white felt, gray left side terminals and openings in outlets, yellow right side terminals.
9. Switch is dark gold felt with yellow terminals and black strip.
10. Fuse box is gray.



11. Circuit breaker is gray.

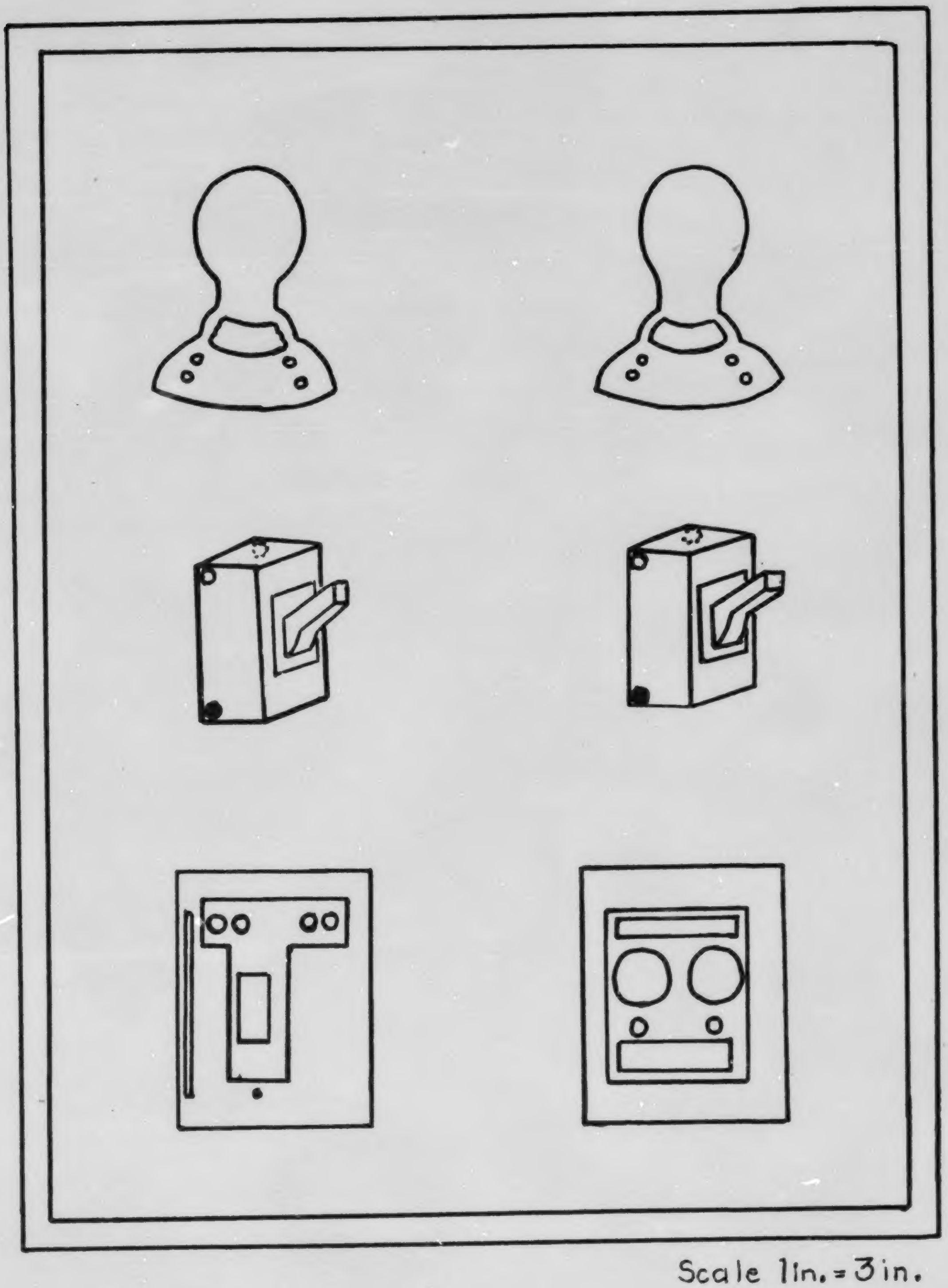


12. 6" x 9" manilla envelope glued to back of board.
13. Black, red, and white yarn to use for wires.



Scale 1in. = 3in.

Felt Board with Single Pole Switch



Scale 1in. = 3in.

Felt Board with Three Way Switches

EXAMPLE FOUR

Building Construction Kit

Dorothy Osborne
Averill Career Opportunities Center
Saginaw, Michigan

Directions for Developing Instructional Aid

KITS

Instructional kits, in contact-covered boxes, are made up for various classes. There is a kit for building construction, welding, electricity, micrometer reading, fractions, etc. In each kit are folders or envelopes which contain materials on a specific subject. For example, teacher-made materials in a building construction kit may include framing a house. An electricity kit may teach series circuitry.

Materials are brief and concise. They are simple and often in color. Most material is hand printed and is larger than type. Many are manipulative.

The student is concerned with only the necessary reading and math. A kit presents only one concept at a time. Students are less threatened by these materials than by books, which can be overwhelming. Color helps to hold attention. The student is encouraged with small successes, and success builds on success.

-BuildingConstructionKit-

Tools

Farming parts

Roofs

Brick laying

Nails

ROOFS
Building Construction

Stair problems

Roof members

Rafter definitions

Blueprint reading

Terms to Know

Mortar joints

Figure length of:
① common rafters
② hip rafters
③ jack rafters

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RESOURCES

There are several organizations offering services to the hearing impaired population. Listed below are a few of the national organizations which provide information and resources for the public in general.

Alexander Graham Bell Association
for the Deaf, Inc.
1537 35th Street, N.W.
Washington, D.C. 20007

American Speech and Hearing Association
9030 Old Georgetown Road
Washington, D.C. 20014

Council of Organizations Serving
the Deaf
P.O. Box 894
Columbia, Maryland 21044

Gallaudet College
Public Service Programs
Kendall Green
Washington, D.C. 20002

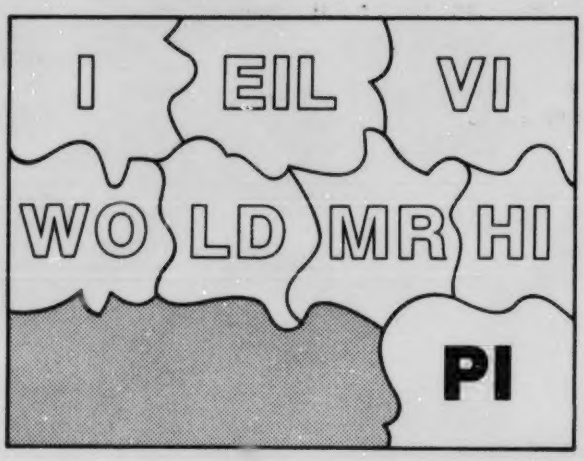
International Association of
Parents of the Deaf
814 Thayer Avenue
Silver Spring, Maryland 20910

National Association of the Deaf
814 Thayer Avenue
Silver Spring, Maryland 20910

National Technical Institute for
the Deaf
Rochester Institute of Technology
1 Lomb Memorial Drive
Rochester, New York 14623

The President's Committee on
Employment of the Handicapped
Washington, D.C. 20210

CHAPTER VIII



Physical Impairments

Jo Ann Salin

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PART ONE
WHAT'S IT LIKE

DESCRIPTION OF A HANDICAPPED YOUTH

Over the past decade the public has become keenly aware of the frustrations and limitations imposed on physically handicapped persons by narrow doorways, stairs and inaccessible bathrooms. But these are only a small sample of the numerous inconveniences and limitations that physically handicapped persons face every day in the course of their normal activities. The simple tasks that we perform with ease may be monumental and complicated procedures for the physically handicapped. The 30 minutes you might take to get dressed in the morning before going to work may last close to 3 hours for someone in a wheelchair. Turning the pages of a book, signing a check, or crossing a street are only a few examples of the frustrating tasks encountered by the physically handicapped. There are many more.

A day in the life of a young woman confined to a wheelchair, illustrates what it is like to be physically handicapped. Laura has multiple sclerosis. She is 23 years old and has been in a wheelchair for 5 years. She attends vocational school and is studying to be a medical records technician.

Her day begins at 6:00, when Laura's live-in attendant wakes her. Laura takes her 6:00 pills and falls back to sleep until 7:30. Because Laura has spasticity and weaknesses in her arm muscles, she has limited use of her arms. Thus, her attendant must do almost everything for her. At 7:30 Laura must be lifted and moved from her bed to her wheelchair. The attendant must do this time-consuming transfer numerous times during the morning while she helps Laura get bathed and dressed. Laura can brush her teeth independently, but she needs help with every other part of getting ready in the morning. The attendant transfers Laura in and out of the bath tub, helps Laura wash and dry herself, and puts Laura's clothes on her. Buttoning buttons, tying shoes and combing hair are other things the attendant must do for Laura.

This lengthy dressing process is only a part of Laura's morning routine. Because Laura doesn't have control of her bladder, she must wear a catheter and a leg bag. Each morning the catheter must be carefully cleaned. Time must also be taken to do her daily range of motion exercises. Laura's attendant stretches and moves all the muscles in Laura's arms and legs. These important exercises will help prevent stiffness and keep Laura's muscles in as good condition as possible. Before beginning the exercises, cold packs are put on each of Laura's leg muscles for 15 minutes. When all of these things are finished, Laura has time for a quick breakfast before she leaves for school. Three hours have passed and Laura is finally ready to go.

At 10:30 the special bus for the handicapped and the elderly arrives to take Laura to school. She feels lucky on days when the bus is able to pick her up on time. There have been occasions when the bus company has called to inform her that, due to a conflict, the bus would be late.

Her first class begins at 11:30. This gives Laura time to stop in the student lounge and relax with a cup of coffee. Unlike other students, she does not have the luxury of using a locker. The school has assigned a locker to Laura, but the hook inside is too high and the shelf is even higher. As a result, she does not use the locker. This means she must always carry everything with her. As an additional burden, she must carry her lap board. She must use her lap board when she is in a classroom that does not have a table for her to use.

In order to get to her classes on time, Laura must allow more time than other students. The biggest problem in getting to class is not the moderate pace of her wheelchair, but the use of the elevator. Although signs are posted which read, "Let handicapped persons enter first", able-bodied students pile into the elevator and leave Laura in the hallway to wait for the next elevator.

Laura finally gets to class only to face another frustration. The assignment is to fill out record forms. Laura wears a hand splint which enables her to write. But writing numbers in small spaces on a record form is a slow, tedious process. Laura's classmates finish long before she does. Work that her classmates can finish in 15 minutes may take Laura 1 to 2 hours. She will have to find time at home later to complete it.

At 12:20 Laura heads toward the cafeteria for lunch. Here again, time is her enemy. The 70 minutes allowed for lunch seem more than adequate. But a physically handicapped person needs more time than others to finish simple tasks. And 70 minutes for lunch is just too short. Laura is one of the last to finally reach the cafeteria, and the line is incredibly long. Because the trays, coffee and canteen buttons are too high for Laura to reach, she must impose on others for help.

Her class after lunch is a lecture. Laura carries a tape recorder to class. Her inability to write quickly enough to take notes makes it necessary for Laura to record what her instructor says. She is glad to have the use of a tape recorder, but it is not without its problems. Listening to a lecture for a second time is time consuming. Often the instructor's voice is inaudible.

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One of the most embarrassing situations Laura faces is when she must use the bathroom. There is never enough time between classes. As a result, she must raise her hand in class and ask to be excused. To add to her embarrassment, she must ask to have a classmate accompany her. The bathroom in the old school building is not fully accessible, which means she needs someone to help move her wheelchair.

After classes Laura and a classmate decided to go across the street for an ice cream cone. Laura enjoys going to the ice cream shop, but seldom does. There is no traffic light on the corner. Crossing this street in a wheelchair is frightening.

The bus for the elderly and the handicapped picks Laura up again after school. She gets home by 4:30. Laura has dinner, watches a little television, and studies before getting ready for bed. It takes a couple of hours to do such things as undress, exercise, and take pills. By 11:00, Laura's day ends.

INTRODUCTION TO PHYSICAL IMPAIRMENTS

This chapter describes some conditions which cause physical handicaps. It does not provide an exhaustive examination of each impairment. The reader is encouraged to use the reference and resource list at the end of the chapter to gather additional information. The descriptions focus on physical manifestations. The cognitive and emotional difficulties which some physically handicapped individuals may also experience are covered in the preceding chapters.

DISABILITIES DUE TO AMPUTATION OR PARALYSIS

The most likely cause of amputation is trauma from an auto accident, war casualty, or industrial accident. An amputation may also be the result of tumors, certain diabetic conditions, and inadequate blood supply to an extremity. In some instances, limb absence or deficiency can be congenital.

Difficulties of the amputee fitted with a prosthesis:

1. The amputee cannot perform any physical activity which involves the use of the affected limb or limbs without restrictions.
2. The prosthesis is uncomfortable.
3. The amputee frequently experiences fatigue more quickly than before the amputation.

Paralysis is the loss of voluntary motor function caused usually by disease or accident. There are several types of paralysis named according to the extent of the body paralyzed:

1. Monoplegia
    - partial or complete paralysis of one limb
2. Triplegia
    - partial or complete paralysis of 3 extremities
3. Quadruplegia or tetraplegia
    - partial or complete paralysis of both legs and arms
4. Paraplegia
    - paralysis of the lower part of the body

5. Hemiplegia

   - partial or complete paralysis of one lateral half of the body. Hemiplegia is caused primarily by damage to the brain. The other types of paralysis are caused primarily by damage to the spinal cord.

There are a number of physical problems that may be experienced by a person with a paralysis:

1. A high susceptibility to disease, particularly in the kidneys, bladder or other organs of elimination
2. A lack of sensation in the paralyzed parts of the body
3. Pressure sores (known as decubiti) which are difficult to cure
4. Loss of muscle power and function.

CEREBRAL PALSY

Cerebral palsy is caused by damage to the brain usually before, during or shortly after birth. This brain damage affects control over voluntary muscles in the arms, legs, tongue or eyes. Total body movement may be affected. Symptoms range from barely noticeable to profound multiple handicaps. They may include awkward or involuntary movements (with or without lack of balance), irregular gait, gutteral speech, facial grimacing and/or drooling. Cerebral palsy may or may not be accompanied by other medical dysfunctions such as a speech or language disability, visual or hearing impairment, mental deficiency or convulsions. A small percentage of the people who have this impairment are only mildly disabled. Although there is no cure for cerebral palsy, it usually does not get progressively worse.

SPINA BIFIDA

Spina bifida is a common birth defect. In this disorder the bone area at the lower part of the spine fails to develop fully, leaving an opening in the spine. The result may be weakness or paralysis of the legs and loss of control in eliminating body wastes.

MULTIPLE SCLEROSIS

Multiple sclerosis is a disease of the central nervous system in which the nerve impulses are not functioning properly. This results in any of the following conditions:

- paralysis, or partial paralysis of the trunk, upper and lower extremities
- weakness or loss of control of the bladder or bowel
- loss of balance (or staggering)
- slurred speech, double vision, and jerky movements of the eyes
- dizziness or tremors.

These symptoms may occur, then disappear for long periods. Many individuals are never severely disabled. In other cases, the disease becomes progressively disabling, creating a need for crutches, wheelchairs, or modified equipment.

CYSTIC FIBROSIS

Cystic fibrosis is a disorder of the respiratory and digestive systems. Secretions of the sweat, mucous and salivary glands are affected. With cystic fibrosis, the normally thin and slippery mucous becomes thick and sticky. The result is frequent respiratory infections and, in some cases, difficulty with digestion.

Cystic fibrosis is not contagious. It is a hereditary disease. Medical and surgical procedures can be used to treat and control this disorder.

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Some physical manifestations of this disorder are difficulty with proper breathing, shortness of breath, clubbing of fingers and toes, fever, a barrel-shaped chest, frequent coughing and a decreased appetite.

MUSCULAR DYSTROPHY

Muscular dystrophy is a term referring to a group of neuromuscular diseases where there is a gradual and progressive weakening and wasting of the voluntary muscles. There are many different kinds of muscular dystrophy. As the disease progresses, the individual may have difficulty performing ordinary activities of life and may even need a wheelchair.

Muscular dystrophy is usually inherited. It can, however, occur in families with no previous history of the disease.

There is no known cure for this disease. However, there are medical treatments which may lengthen the person's life and compensate for muscle weakness.

The physical manifestations of this disease are varied. Some indicaviduals are confined to wheelchairs. Others can walk with the assistance of crutches, a cane, leg braces, or special shoes. For those who have weakness in their shoulder muscles, it may be difficult or impossible to lift heavy objects, to push a wheelchair or to get dressed and bathed.

Most individuals with muscular dystrophy are children between the ages of 3 and 13.

APHASIA

Aphasia is a language loss in some or all aspects of communication. The individual may have difficulty with talking, reading, writing, or understanding. The person knows what he or she wants done, yet is frustrated and defeated by an inability to talk or to understand consistently.

Aphasia is a result of damage to certain portions of the brain. In many cases, aphasia stems from a stroke. A person with aphasia may also have severe headaches, trouble with vision, or may be subject to seizures.

EPILEPSY

Epilepsy is a neurological condition, not an emotional one. It is a disorder in which there is, at times, an improper functioning of brain cells. When this happens, the brain loses partial or complete control over the muscles of the body, consciousness, the senses or even thoughts. This condition is known as a seizure.

Among the causes of epilepsy are:

1. Brain injuries due to accidents (particularly highway accidents)
2. Fever-related convulsions
3. Brain damage from prenatal or birth injuries
4. Infectious diseases, tumors, kidney disease
5. Alcohol and drug abuse

The causes are physical. Worry, emotional upset, and fright do not cause epileptic seizures. However, psychological factors may bring about seizures in individuals who are subject to seizures.

Epilepsy is not inherited. However, brain wave dysrhythmia can be inherited. This can predispose an individual to epilepsy.

A seizure is a temporary condition in which a person experiences a clouded, dream-like consciousness or loss of consciousness. He or she may or may not fall down, have twitching muscles, or a convulsion. A convulsion is a violent and involuntary contraction of muscles.

Before some seizures begin, the individual with epilepsy may experience a warning called an aura. This warning, which occurs just before the seizure begins, is different with each person. The warning may be a feeling of numbness, tingling, warmth, cold or just a "funny feeling". The aura gives the individual time to lie down or look for safety and seclusion before consciousness is lost.

A cure for epilepsy has not yet been found. No known treatment can permanently stop epileptic seizures. Fortunately for the majority of persons, epilepsy can be controlled with the use of anticonvulsant drugs. With medication, 50% of people with epilepsy can be completely free from seizures. Another 30% can obtain partial control.

The nature of a seizure varies greatly. There are 3 main types of seizures.

Grand Mal Seizure (also referred to as Generalized Tonic-clonic Seizure)

A large percentage of people with epilepsy are subject to grand mal seizures. Grand mal seizures are characterized by the following:

1. The individual loses consciousness and falls to the ground. The muscles become rigid and jerk violently and spasmodically.
2. The individual may breathe noisily and make sounds known as the epileptic cry.
3. Saliva, tinged with blood from tongue biting, may drip from his or her mouth.
4. The face may become bluish or dusky in color.
5. As the seizure subsides, normal color and respiration returns. The individual lies relaxed in a sleep-like condition, breathing heavily. He or she will remain unconscious for a period of a few minutes up to about half an hour.
6. Headache and fatigue often follow a seizure. On some occasions an abnormal mental state is present for a few minutes or a few hours after the seizure. During this time, the individual is not aware of his or her behavior, even though he or she is conscious. However, after recovering consciousness, the individual is usually able to resume normal activity easily.

Petit Mal Seizures (also referred to as Generalized Absence Seizure)

Petit mal seizures consist of a brief loss of consciousness (from 5-30 seconds) without convulsions. Usually the individual remains standing or sitting, and may even continue with a simple activity like walking. During petit mal seizures, which can occur frequently, the individual is not aware of his or her surroundings. He or she may look dazed, have a vacant stare, blink rapidly or have a few muscle jerks. After consciousness returns, the individual resumes his or her activities as if nothing has happened.

Psychomotor Seizures (also referred to as Complex Partial Seizure)

These seizures are not characterized by convulsions or falling down. An individual having a psychomotor seizure exhibits purposeless behavior or such actions as aimless walking, picking at clothing, and lipsmacking. Abdominal pains, headaches, dizziness, fear and anger may accompany psychomotor seizures. Duration of a seizure lasts from a minute to several hours and is followed by sleep. After the seizure, the person cannot remember what has happened.

PART TWO

INSTRUCTING THE PHYSICALLY IMPAIRED IN THE CLASSROOM

PHYSICAL IMPAIRMENTS AND CLASSROOM CONSIDERATIONS

Epilepsy is one of several impairments that may require special consideration in the classroom. When a person with epilepsy has a seizure, the following things should be kept in mind:

1. KEEP CALM - the patient is not in pain, is not suffering, and is not in danger.
2. There is no need to be frightened. Seizures are not catching.
3. DO NOT attempt to stop the attack once it has started. Do not try to revive the patient. Let the seizure run its course. (This usually takes a few minutes.)
4. Ease the person to the floor, loosen tight clothing, but do not restrain his movements.
5. Turn the patient's face to the side to permit release of saliva and make certain that breathing is not obstructed. A coat may be placed under the head.
6. Do not force open clenched jaws. Do NOT force anything between the patient's teeth. NEVER place a finger in the individual's mouth.
7. Do not give the individual anything to drink.
8. Stay with the person until he or she has fully recovered consciousness and is no longer confused. If the person is tired, permit him or her to rest and, when feeling better, encourage the person to go about regular activities.
9. Do not be alarmed if the person with a seizure appears to stop breathing for awhile or to be breathing improperly.
10. Carefully observe the details of the attack so that they can be reported to the person's family or doctor.

After a seizure, do not let the person become isolated or an object of ridicule. Remain calm and give a brief explanation, so that others present understand the illness as a malfunction of certain nerve cells.

Allow the person freedom to continue his or her activity without restraint or undue display of emotion by observers.

If a teacher has a student with epilepsy in class, it is worth noting that the medication taken to control seizures may have the following possible side effects:

- drowsiness
- fatigue
- nausea
- dizziness
- diarrhea
- awkwardness
- double vision
- fever
- skin rash

Cerebral palsy is another impairment which requires special consideration and the instructor's understanding. Frequently people with cerebral palsy will have a significant speech impairment. It may be difficult to understand what is being said. The listener will need to concentrate intensely and be patient in order to become accustomed to the individual's speech pattern. Becoming familiar with the speech pattern will help facilitate communcation.

Impairments resulting from paralysis require the instructor's awareness of environmental and learning conditions. Paralysis is often accompanied by a lack of sensation in the part of the body that is paralyzed. As a result, the individual can be harmed, without knowing it, by heat, severe cold, scraping, rubbing or a striking object. It is, therefore, important to take precautions which will prevent the individual from getting hurt. For the person who has hemiplegia special modifications need to be made. The individual may have a perceptual impairment. Objects may appear to be backward, upside down, or further away. It is important to keep the environment and learning experiences as visually simple as possible. Some persons with hemiplegia may have an intellectual impairment, which can cause difficulty with memory. In teaching these students, it is advisable to:

- give only the number of tasks that the individual can handle

- give simple, concrete instructions with many repetitions
- show the student exactly what to do and when to do it
- provide emotional support for the student's capabilities

Multiple sclerosis is a disease in which symptoms alternate between periods of quiescence and recurrence. The nature of the disease requires the instructor to be cognizant of the student's changing condition. When symptoms recur, the student should have periods of rest followed by reduced activity. This period will depend on the type, severity and length of the relapse. This should be kept in mind when planning classroom and shop activities.

We have examined how four impairments can affect a classroom situation. Many other impairments also handicap special needs students. Instructors need to recognize such impairments, learn as much as possible about them, and seek ways to help these students succeed.

INTRODUCTION TO CLASSROOM MODIFICATIONS

In general, students with physical handicaps will be intellectually capable and able to participate in vocational programs. However, environmental limitations may prevent these students from succeeding in school. Modifications for physically handicapped students will require physical changes rather than curriculum changes. Modifications need to be made in classrooms, laboratories, equipment, building accessibility, and lavatories. In making educational programs and class activities adaptable to the physically handicapped, the instructor will want to consider the following movement-related barriers:

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- long walking distances
- waiting in a standing position
- sitting down and/or getting up

- moving in crowds
- carrying things
- reaching and handling

ARCHITECTURAL MODIFICATIONS

An accessible building is one which can be used by everyone. All can enter, leave, circulate and conduct their business or activities without assistance. The following conditions help make a business accessible:

1. Parking spaces should be 12 feet wide and located as near to entrance doors as possible. Five percent of the available parking spaces should be reserved for handicapped people.
2. Building entrances should have doorways that allow a clear opening of 32 inches minimum. Also the pressure to open doors should be less than eight pounds. Approaching door knobs, opening the door and moving in or out of a building through the doorway is a troublesome procedure for people in wheelchairs. The most convenient and accessible type of door to use is the electric sliding door. Revolving doors make entry impossible for the person in a wheelchair.

   Ramps can be built to compensate for steps. The slope of the ramp should have a maximum of one inch rise for each foot of length.
3. In order for restrooms to be accessible, the stalls must be no less than 36 inches wide by 72 inches long, with hand rails (also called grip bars) attached to the wall. The sink in the restroom must be no higher than 33 inches. Mirrors and dispensors should be mounted about 40 inches high.
4. Floor coverings should be selected carefully, using surfaces that a wheelchair can roll over easily.
5. Buildings should have an elevator that services all floors of the building. The elevator control panels should be less than four feet from the floor with the top of the control panel no more than 54 inches high.
6. Water fountains should be placed low enough so that they can be used from a wheelchair. They should be less than 36 inches from the floor.

7. Emergency exits need to be accessible. It is imperative to plan evacuation procedures that accomodate people who are in wheelchairs.
8. Public telephones should be installed so that the height of the coin slot is not more than 54 inches high.

For semi-ambulatory persons who rely on braces and crutches for assistance in walking, the following provisions need to be made:

1. All floors of the building must be accessible by elevators.
2. Steps should be kept to a minimum. Ramps make movement easier. Steps should also have rounded edges.
3. Handrails that are 32 inches high need to be placed on both sides of a stairway.
4. Floors should be covered with non-skid materials or finish to prevent slipping.
5. Hallways and stairs must have good lighting.

Just as the entire building must be made accessible, the classroom must also be modified for use by handicapped people.

1. Cabinets and drawers should not have protruding handles which can get in the way of a wheelchair.
2. Partitions should not have feet, as these can be dangerous to people who use crutches.
3. Adjustable desk surfaces enable students in wheelchairs to fit comfortably under them. The appropriate height for a desk is 30 inches from the floor.
4. Right-handed desks can be converted for use by a left-handed person.
5. All edges and corners should be rounded.
6. In order for a work area to be usable by a person in a wheelchair, it must be wide enough to allow the wheelchair to make a 180-degree three-point turn.
7. A handicapped individual will have easier mobility if located near main walk areas.
8. Classroom aisles need to be wide enough to be used by people in wheelchairs.
9. A reserved spot for a wheelchair in the classroom is both a convenience and thoughtful courtesy to the handicapped student. The reserved spot should be positioned inconspicuously and fairly.

The Vocational-Technical Adult Education District I in Eau Claire, Wisconsin, has created a unique elevator aid for students in wheelchairs. A stick is hung along side the floor selector panel. This enables students in wheelchairs to reach the uppermost buttons.

In some instances, a building custodian can make modifications easily and inexpensively.

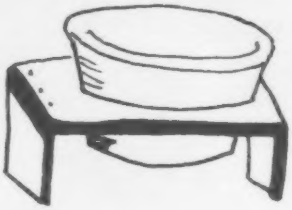
MODIFICATIONS IN A HOME ECONOMICS PROGRAM

Frequent activities in a home economics class are stirring and mixing. If holding the bowl while stirring is difficult for a student, one of the following solutions may be helpful:

1. A bowl holder can be purchased from Fred Sammons, Incorporated.
2. A wet rag or dish towel can be placed under the bowl. This will keep the bowl steady for light stirring. Dycem, available from Fred Sammons, Inc., is a non-slip material which can be used in place of the wet rag.
3. The mixing bowl can be placed inside a drawer, which is gently closed to anchor the bowl securely.
4. A homemade device, using three pieces of plywood, makes a satisfactory bowl holder (see Figure 1). Cut a hole in one of the pieces of wood. The hole should be large enough for the bowl to rest in it. Attach this board to the two other pieces of wood, which serve as legs. This holder can be be made steadier by adding a thin strip of rubber to the inside of the hole and the bottom of the leg supports.

Figure One

Bowl Holder



A simple method for mixing liquids and certain foods is to pour the liquid or food into a container with a tight lid. Shaking the container vigorously provides adequate mixing.

It is usually easier for a handicapped person to use lightweight pans. These are also easier to empty and wash.

An electric can opener is a valuable appliance for opening containers. Fred Sammons, Inc. sells special electric can openers for one-handers as well as jar and bottle openers. These special appliances and gadgets are helpful to any handicapped person. Jar and bottle openers can also be purchased from FashionAble, or Multi-Marketing, or Riswell, Inc.

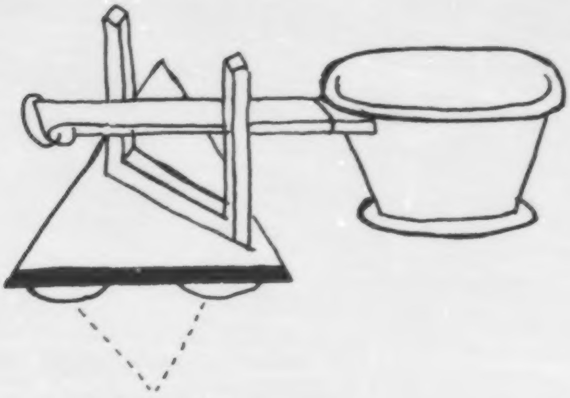
Gadgets for measuring and mixing are useful aids for the handicapped person. One-handed beaters and potato mashers can be purchased at hardware stores or from Fred Sammons, Inc. These are operated by pressing down on the handle.

An alternative means of measuring solid shortening is to use the displacement method. This method can be performed easily with one hand. For example, to measure 1/2 cup of shortening, fill a larger measuring cup completely full of water. Then remove 1/2 cup of the water. Replace the water with enough shortening to cause the water to rise to the top of the cup again. This method also allows for easier removal of the shortening from the measuring cup.

If sifting flour is a problem, a sifter for one-handed persons can be purchased from Foley Manufacturing. Also, non-tip measuring cups and spoons are two additional helpful gadgets. These can be purchased from Fred Sammons, Inc.

A holder for pot or pan handles keeps pots and pans in place while stirring and cooking on top of the stove. These holders can be easily made. Cut a triangle from a piece of plywood. Attach three suction cups to the bottom. This will serve as the base. Attach to the base a second piece of plywood that has been cut into the shape of a squared off "U". The handle of the pot will fit into the U opening (see Figure 2). A ready-made holder can be purchased from FashionAble.

Figure Two
A Holder for Pot or Pan Handles



3 Screw-On
Suction Cups

A peeling and cutting board is a frequently used item and can be easily made. Nails which protrude from the center of the board hold fruits and vegetables in place. With the food securely anchored on the board, peeling or cutting can be easily accomplished. Many of these boards have a lip on one corner. Bread can be kept in place in this corner for buttering or making sandwiches. These pairing boards can be purchased from Fred Sammons, Inc. or Medical Equipment Distributors, Inc. Boards that are handmade should be well-sanded and finished with two coats of high quality wood lacquer. Besides the center nails, an additional nail attached to one corner will allow the user to secure a sizeable piece of meat for trimming. A piece of material (like rubber or Dycem) can be attached to the bottom of the board to prevent slipping. When not using the board, corks can be placed over the nails.

If using a potato peeler is difficult, the following alternative technique may provide a satisfactory solution. First boil the potatoes, then run them under cool water so that the skin peels off easily. Carrots can be peeled nicely by rubbing the raw carrot with an unsoaped scouring pad.

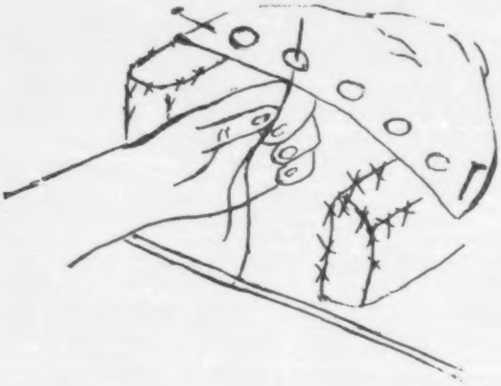
Dishwashing can be simplified. A brush with suction cups can be attached to the bottom or side of the sink. This provides a convenient utensil for washing bottles or glasses. These brushes are available from Fred Sammons, Inc. The easiest and most sanitary way to dry dishes is simply to set them in a drainer, rinse with hot water and allow them to drain dry. When drying dishes with a towel, place the towel on the top of the counter and lay the dish on the towel. This procedure simplifies the task of drying dishes. To make the job of washing easier, first soak in warm water. To scour large pans, force them into a corner of the sink to stabilize them.

The following simple suggestions can make sewing easier. A needle anchored in a lump of clay or a potato will remain steady for threading. An automatic threader is available from FashionAble. Also available are a clamp hook for needlework, electric scissors, left-handed scissors, and amputee scissors and pinking shears.

Two padded bricks placed several inches apart can be used to anchor material. The material can be attached to the padded bricks with long pins. With material securely anchored in this way, sewing can be more easily performed (see Figure 3).

Figure Three

Sewing Aid



MODIFICATIONS IN A BUSINESS PROGRAM

The Typewriting Institute for the Handicapped and the S.C.M. Corporation, Consumer Products Division, manufacture special typewriters for one-handers.

Other items that assist a handicapped person in writing and record-keeping include a clip board with compartments, a revolving desk organizer, which can be purchased from FashionAble, pencil holder, page turners and book holders.

Special telephone attachments are valuable aids. The receiver phone holder is sold by Fred Sammons and by Sparr Telephone Arm Company. A stand holds the telephone receiver and can be adjusted to reach the user's ear. Thus, the user does not have to hold the phone. The user's hands are left free. Another convenience, the automatic dialing phone is available from Prentke Romich Company. For many handicapped persons, dialing can be accomplished more easily with a push button phone.

An example of a program that teaches typing to a handicapped student is presented in Part 3 of this chapter.

MODIFICATIONS FOR AN OFFICE SETTING

An ideal office setting, fully accessible and usable by handicapped workers, would include the following modifications (Mueller, 1979):

1. Windows should slide open vertically. The measurements for the window should be:
    - window control: 20 to 54 inches off the floor
    - maximum operating force of the window control: 5 pounds
    - lower edge of window: 23.5 to 35 inches off the floor
2. Wall fixtures
    - plugs: 18 to 48 inches off the floor
    - thermostat (with a dial control): 36 to 48 inches off the floor
    - light switch (rocker type switch): 36 to 48 inches off the floor
    - door handle (rounded lever type): 36 to 42 inches off the floor
    - coat hooks: 42 to 48 inches off the floor
3. Shelving
    - width of shelf: 9 to 12 inches
    - maximum shelf height: 63 inches

- bottom shelf: 16.5 inches off the floor (minimum)

Bulkiest objects should be located on a shelf that is the same level as the desk.

4. Desk measurements

   - depth of desk (from front to back): 29 to 38 inches wide
   - bottom drawer handle: 16.5 inches off the floor (minimum)
   - desk top surface: 30 to 32 inches off the floor
   - knee area (undersurface): 29 to 30 inches high (an adjustable desk top is preferable)

   It is best to avoid center drawers.

5. Filing cabinet measurements

   - handle of bottom drawer: 16.5 inches off the floor (minimum)
   - top of the cabinet: 44 inches off the floor (maximum)

6. Door modifications

   - width: 32 to 36 inches
   - kickplate: 12 to 18 inches
   - rounded lever in place of a door knob: 36 to 42 inches from the floor
   - door closer resistance: 5 to 15 pounds (automotic door is preferable)
   - glazing in upper half of door

7. Other modifications

   - slip-resistant, non-glare surfaces (avoid rough surfaces and protruding objects)
   - carpeting should be thin, heavy-duty, unpadded, loop pile carpeting. Avoid carpet with sculptured textures or changes in direction of grain. Carpeting should be firmly fixed to floor.
   - telephone receiver should have a handset cord of 36 inches (minimum)
   - avoid sharp edges and corners

- adjustable seating height and support for lower back
- door should open into lower traffic area and have clear space on both sides of door
- drawers with rollers permit easy operation
- U-shaped handles can be used with one hand

The following is a list of additional modifications that are relevant to specific functional limitations:

1. Limitation of Speech
   - minimum noise for better communication
   - teletype for nonverbal telephone communication
   - face the work station toward co-workers and office traffic for face to face communication
   - use clear written instructions to minimize need for verbal assistance
2. Susceptibility to Fainting, Dizziness, Seizures
   - bar or handle assists, firmly anchored, wherever added support is needed
   - avoid secluded work stations
   - avoid need for bending down to reach or lift
   - wheeled cart or other aid for carrying materials
3. Incoordination
   - telephone aids: headset receiver, adjustable arm for receiver, enlarged "touchtone" buttons
   - bar or handle assists, firmly anchored, wherever added stability is needed
   - controls should be large and well-spaced
   - electric self-correcting, auto-return typewriter with keyguard to increase accuracy and stability
   - lip around edge of work surface to keep materials from falling off
   - tools and materials should be heavy and durable
   - use bolts, clamps, or non-slip mats to stabilize materials

4. Limitation of Stamina
    - avoid extreme dry air, extreme or abrupt temperature change
    - avoid smoke, dust, fumes
    - avoid frequent changes in work schedule or level of physical exertion
    - minimize requirements of mobility, lifting, reaching
5. Difficulty in Moving Head
    - bookstand for holding documents at comfortable reading level
    - typewriter tilted for better view of copy work
    - face the work station toward co-workers and office traffic for easier communication
6. Limitation of Sensation
    - avoid floor outlets, phone terminals, or other projections
    - avoid exposed heat sources
    - avoid sitting for long periods of time
7. Difficulty in Lifting and Reaching with Arms or Inability to Use Upper Extremities
    - door closer resistance: 2 pounds, maximum
    - avoid lip on shelf edge
    - telephone aids (see incoordination)
    - electric self-correcting auto-return typewriter
    - mechanical "reachers" can aid in operation of doors, files, windows, etc.
    - work surface should be raised or lowered for working with feet or mouth-stick
8. Difficulty in Handling and Fingering
    - telephone aids (see incoordination)
    - electric self-correcting, auto-return typewriter with key guard for greater accuracy
    - pen/pencil slipped through rubber ball or hard foam for easier grasp
    - cassette tape recorder for messages, memos, dictation, etc.

9. Difficulty in Sitting
    - minimize need for reaching up or bending down
    - seating with full arms and backrest, stable base
    - seat belts and/or cushions for added stability
10. Difficulty in Using Lower Extremities
    - shoulder bag or other aid for carrying materials
    - provide convenient storage for walking aids at work station

For additional modifications and suggestions that make an environment usable by persons with disabilities refer to James Mueller (1979).

MODIFICATIONS IN A TRADE AND INDUSTRY PROGRAM

Workers in trade and industry programs use their arms, hands and fingers extensively. Because the handicapped worker may have limited use of his or her upper limbs, modifications should enable him or her to perform the necessary tasks. The following suggestions and descriptions are modifications that can be successfully used in the trade and industry programs.

Jigs are frequently used to modify equipment and machinery. These jigs allow a severely disabled worker to perform production-oriented tasks. Swarts, Smith and Biddy (1974) describe 10 jigs which can be used in an industrial engineering program. Two of these jigs, holding fixtures for deburring drilled holes and a spotwelder holding fixture are described below.

A HOLDING FIXTURE FOR DEBURRING DRILLED HOLES IN BRASS BLOCKS

THE PROBLEM

The job required the removal of burrs from each of eight previously drilled holes in small (approximately 5/8" x 1/2" x 1/4") brass blocks. When completed, the blocks form a subassembly for thermocouples. The original method called for the worker to place a countersink bit in a drill press and manually hold the block against the rotating tool until the eight holes were deburred. Not only was this procedure inefficient but highly unsafe. In order to meet the production requirements, an improved method was sought.

THE SOLUTION:

A holding fixture was designed to accommodate seven blocks at a time in a proper orientation for deburring. Since it was required to deburr on three surfaces of the block, it was necessary to design a fixture with a quick-release mechanism that would allow the blocks to be orientated quickly after a surface had been completed. A clamping device was incorporated that held the blocks in a fixed position for deburring the holes in the first surface. With a movement of the clamp, the seven blocks will fall into position for the deburring of the holes in the the second surface. To deburr holes in the third surface, the client is forced to handle each of the blocks manually. When deburring of the holes in the third surface is complete, tipping the holding fixture over a drop chute empties the clip.

The clip and the clamping mechanism are mounted on a wooden base that may be moved by the client while deburring takes place. In this manner, the client's hands are well-removed from the deburring tool and the hazard of hand injury is minimized.

The detail of this fixture is shown in Figure 4.

Figure 4 Deburring Holder Fixture

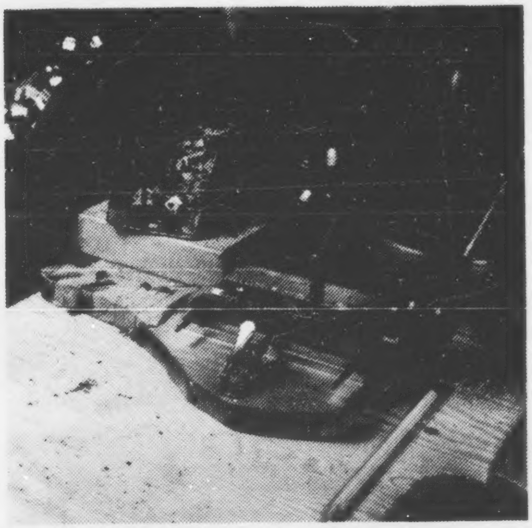


Figure 5 Using the Deburring Fixture

USER POPULATION:

The fixture requires the use of both hands with reasonably light strength (Figure 5). Lower level quads have experienced reasonable success with the fixture. Clients possessing severe upper level extremities and/or amputees (upper) will have difficulties because of the use of two hands.

A SPOTWELDER HOLDING FIXTURE

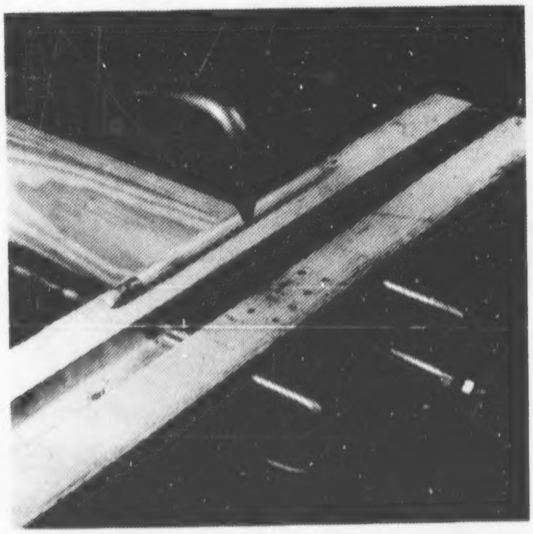
THE PROBLEM:

A contract of spotwelding brass connectors to both ends of a nichrome ribbon required accurate placement of the welding tip at the welding point. The customer has supplied holding fixtures to insure proper length, but they do not effect good placement of the weld.

THE SOLUTION:

A frame was constructed around the welder tongs with a channel to center the fixture along the line of the welder tip. To center the weld point on the other axis, a stop was installed. This locates the fixture on three sides. To reduce handling and dexterity requirements the stop was made to slide and a second one was installed on the other side. This permits the

Figure 6 Spotwelder Holding Fixture



operator to slide the fixture through the channel to the other end instead of lifting it out and turning it around to weld the second end. (See Figure 6.)

USER POPULATION:

This fixture was designed for the primary purpose of improving the effectiveness of the workshop operations. The fixture reduces the dexterity needed in placing the workpiece for welding. It also helps to reduce training time, permitting training workshops to rotate more clients through the work station without increasing supervision. While the fixture, by itself, does not open the operation to clients with lower extremity involvement, it does provide support to the workpiece. This frees the hands if a hand-operated welder is available.

If reaching is difficult, then one of the following suggestions may offer a satisfactory solution:

1. Provide the student with a tool that can be used to gather in items. Surgical forceps, a pliers, grocer's hooks and croupier sticks are examples of useful tools that can aid in reaching.
2. Small objects can be stored in a lazy-susan. By merely turning the lazy-susan, the student can bring any object within his or her reach.
3. In some instances, merely reorganizing the tool and supply areas at the work station is all that is needed to enable the student to easily reach whatever is needed. Objects which are difficult to reach, because of size, shape or weight can be placed on shelves or trays closest to the student.

If a student has difficulty reaching and also operating controls, the following suggestions and modifications enables him or her to accomplish the task.

1. A simple stick can be used by some individuals to push buttons or to press levers.
2. A tube (dowel) slipped over a lever allows for easier manipulation. An example would be slipping a tube over the carriage return lever of a typewriter. The carriage arm then comes within easy reach of the user.
3. Extending a handle enables the user to grasp the handle more easily and perhaps more firmly.

4. Sometimes equipment can be remounted so that it is easier to reach. An example is to move equipment from the center of a bench to the corner.
5. When new machine shop equipment is to be purchased, consider equipment with front-mounted or otherwise easily reached controls.

For some handicapped students, grasping knobs, tools, etc. is difficult. This problem may be resolved by utilizing one of the following suggestions:

1. Attach a lever to the knob. The knob can then be pushed with a mouthstick, a prosthesis or gross movement of the hand.
2. Fasten a temporary large spoked handle to a knob. This can be operated with a prosthesis or gross movement.
3. Large toggle switches can be used to replace on-off knobs. Large slide adjustment mechanisms can be used to replace adjusting knobs which are difficult to operate.
4. Rubber tubing wrapped around a tool handle will increase its diameter.
5. Construct a holder for a tool.
6. Rings, hooks, or straps can be fastened to items that need to be grasped.
7. Small crank handles can be replaced with handles that are longer or larger in diameter.

If grasping flat objects is difficult, one of the following suggestions may offer a satisfactory solution.

1. A rubber finger pad enables the user to pick up flat objects easily.
2. If a hole can be drilled in an object, then the object can be grasped by inserting a finger, mouthstick or prosthesis into the hole.
3. A flat object can be grasped more easily if a handle is attached to it.

Other modifications can also be made in trade and industry programs to enable handicapped workers to function more easily:

1. There are some tasks in which both hands must be used. This may be difficult or impossible for individuals who have restricted use of one hand. For example, a task may require the use of one hand to hold or brace

an object, while the other hand does the work. Securing the object in a vise, or clamping it down can solve this problem.

2. Some equipment is operated by foot controls. Students who have restricted use of their legs or feet, may be able to run this equipment if the control switch is repositioned. With this alteration the knee, elbow, chin or head can be used to operate the switch and run the equipment.
3. For students with spasticity or poor coordination, a template placed over closely spaced controls, is a useful aid.
4. In classes where drafting tables are used, the cross piece of the table should be removed so that a wheelchair can fit under it more easily.

Finally, in every industrial enginneering class, all necessary safety measures and precautions should be taken to protect the handicapped students as well as the other students.

MODIFICATIONS FOR AN INDUSTRIAL SETTING

An ideal industrial setting that is fully accessible and usable by handicapped workers would include the following modifications: (Mueller, 1979)

1. Workstation
    - surface 30 to 32 inches high
    - knee area (undersurface) 29 to 30 inches high
    - depth of work station: 29 to 38 inches
    - wide drawers: bottom drawer handle should be 16.5 inches from the floor (minimum)
2. Wall hanging cabinets (above work station)
    - space between work station surface and bottom of cabinet should be 10 to 16 inches
    - cabinet height - 63 inches (maximum)
    - U-shaped handles - 4 by 1.5 inches
    - handles should be operable with one hand

3. Wall fixtures - appropriate measurements are:

    - light switch (rocker switch type): 36 to 42 inches off the floor
    - plugs: 18 to 48 inches off the floor
    - pull-type alarm: 36 to 48 inches off the floor
    - wall phone, dial height: 48 inches off the floor (receiver with volume control)
    - coat hooks: 42 to 48 inches off the floor

4. Door - modifications

    - width: 32 to 36 inches
    - kickplate: 12 to 18 inches high
    - rounded lever in place of a door knob: 36 to 42 inches from the floor
    - glazing in upper half of door
    - door closer resistance: 5 to 15 pounds (automatic door is preferable)

5. Other modifications

    - equipment controls (lighted push-button switches preferred) - 16.5 to 54 inches high
    - conveyor should be on same level as work surface
    - walls should be free of rough surfaces and protruding objects
    - door should open into lower traffic area and have clear space on both sides of door
    - sharp edges and corners should be eliminated
    - non-glare lighting minimizes fatigue

The following is a list of additional modifications that are relevant to specific functional limitations:

1. Limitations of Speech

    - minimize noise for better communication
    - use teletype for non-verbal telephone conversation
    - position work station toward co-workers for face-to-face communication

- use clear written instructions to minimize the need for verbal assistance

2. Susceptibility to Fainting, Dizziness, Seizures

   - sudden noises or flashing lights may bring on seizures
   - firmly anchor bar or handle assists wherever added stability is needed
   - use "deadman" switches
   - avoid secluded work stations

3. Incoordination

   - provide telephone aids: speakerphone, headset receiver, adjustable arm for receiver, enlarged "touchtone" buttons
   - firmly anchor bar or handle assists wherever added support is needed
   - supply tools and materials which are heavy and durable
   - controls should be well-spaced with guards on the controls to avoid accidental activation
   - avoid touch-sensitive controls
   - a lip on the edges of work surfaces keeps materials from falling
   - minimize need for long reaches, stretching up, bending down

4. Limitation of Stamina

   - avoid extremely dry air, extreme or abrupt temperature change
   - avoid smoke, dust, fumes
   - minimize stretching, kneeling, bending down
   - telephone aids (see incoordination)

5. Limitation of Sensation

   - avoid exposed heat sources
   - avoid sitting for long periods of time
   - avoid floor outlets, phone terminals, other projections

6. Difficulty in Lifting and Reaching with Arms

   - avoid cabinets with doors that hinge up or down
   - use telephone aids (see incoordination)
   - avoid drawers deeper than 12 inches
   - provide mechanical "readers" for operating doors, files, windows, controls, etc.

7. Difficulty in Handling and Fingering

   - avoid latches on storage cabinets
   - use telephone aids (see incoordination)
   - pen/pencil can be slipped through rubber ball or hard foam for easier grasp
   - tool stands/holders make grasp easier
   - push-button or rocker type equipment controls with an optimum operating force of 3/4 pounds are preferable to levers or knobs
   - use slick work surfaces for easier movement of materials
   - use bolts, clamps, or non-slip mats where stability is needed

8. Inability to Use Upper Extremities

   - use telephone aids (see incoordination)
   - use push-button or rocker type equipment controls
   - work surface should be raised or lowered for working with feet or mouthstick
   - use slick surfaces for easier movement of materials

9. Difficulty in Using Lower Extremities

   - bar or handle assists, firmly anchored, wherever added support is needed
   - provide convenient storage for walking aids at work station
   - shoulder bag, crutch bag, or other aid for carrying materials
   - avoid need for carrying heavy objects
   - avoid controls requiring both hands

10. Poor Balance

    - bar or handle assists, firmly anchored, wherever added support is needed
    - minimize need for standing, walking, carrying
    - minimize need for reaching up or bending down

For additional modifications and suggestions that make an environment usable by persons with disabilities refer to Mueller (1979).

MODIFICATIONS IN ACADEMIC CLASSES

A lecture which requires notetaking can be a problem for the physically handicapped student who has difficulty writing. There are several ways to remedy this problem:

1. Some handicapped students can use tape recorders to record an entire lecture. This is a simple but not always desirable method. It is time consuming to listen to the lecture a second or third time. (Some students resolve this by having a typist type the entire recording.) Another problem with using a tape recorder is that often parts of the recording are inaudible. This can occur when there are interferring noises in the lecture hall, or when the speaker turns his or her head away from the microphone. Another disadvantage of using a tape recorder is that mechanical difficulties can cause the tape recorder to breakdown. One handicapped student uses his tape recorder in a unique manner, which he finds effective. He listens closely to the lecture and, at the same time, whispers key words and phrases into the tape recorder. These key words and phrases reflect the essence of the lecture.
2. Many handicapped students use the carbon copy technique as a means of acquiring lecture notes. A classmate is asked to slip a carbon copy into his or her notebook to duplicate notes. The main disadvantage of this method is that unless the notetaker is one of the better students in the class, the quality of the notes may be poor. Illegible penmanship may also be a problem.
3. An outline of the lecture, prepared by the instructor, is a useful aid for the handicapped student. It would also be helpful for the other members of the class.

The usual method of taking a test may present problems for the handicapped student. There are several alternative ways of taking tests that can be easily carried out by a student who has difficulty writing.

1. In some cases, an oral exam given by the instructor works satisfactorily. However, this can be anxiety-producing for some students. As a result, the student may perform poorly on the exam, although he or she has a thorough knowledge of the material.
2. Some students dictate answers into a tape recorder or to a secretary. If a secretary is not available another student can write the answers. A disadvantage of this method is that presenting material orally is difficult for some students.
3. Typing offers an excellent solution to the problem of test-taking, if the student is able to type.

These alternative test-taking methods require additional time. Some instructors may offer the student "as much time as you need". However, it is probably better to set a reasonable time limit. Since time limits impose a certain psychological affect on students, it would not be fair to the handicapped student or the rest of the class to entirely remove a time limit.

Homework and assignments are another area where an instructor may need to give special considerations and make modifications. A handicapped student may require more time to complete tasks than other students. For example, if a student has some difficulty writing, any work involving math and number problems which cannot be typed, will take a long time to complete. Research papers and reports that necessitate the use of a library may also take longer for the handicapped student to complete because of the difficulty of getting to and from the library. Special transportation arrangements must be made for the handicapped student.

Because a handicap may cause a student to work slowly, it may be advisable for him or her to take fewer credits or classes. Giving a handicapped student advanced notification of assignments (or even a complete semester's list of assignments) is helpful. Other students in a class would also appreciate this information.

It may be necessary to exempt the handicapped student from certain learning experiences. For example, the student in a wheelchair may not be able to accompany the class on a field trip to a place that is not accessible for a wheelchair.

In laboratory courses, a handicapped student may have difficulty with manipulation and may not be able to perform experiments or laboratory work. An alternative is to pair the handicapped student with one or more capable students in the class. In this way, the handicapped student not only learns by observation, but may gain additional information and insights from his or her classmate. Another benefit to this pairing is that the relationship may foster friendship and increased social contacts. Although the handicapped student cannot perform the actual laboratory work, it is advantageous to assign him or her a related task such as recordkeeping. In this way, the student becomes a participating and contributing member of the class.

A need to refer frequently to charts or diagrams in a book can be difficult for students with impaired finger dexterity. Enlarged copies of the charts and diagrams, posted near the student's desk, eliminates the necessity of paging through a book. Page-turners are also helpful aids.

Pencil holders are available for students who have difficulty with coordination or with grasping objects.

OTHER GENERAL MODIFICATIONS AND SUGGESTIONS

Some classroom activities and situations are difficult for the student in a wheelchair because the wheelchair is too low. The student is unable to reach important items or work at high tables. This problem can be solved by using an elevated wheelchair which can be adjusted to various heights. Elevated wheelchairs are manufactured by Summit Services.

A special school counselor or resource person can provide valuable information to handicapped students regarding the kinds of aids and services that are available. This counselor or resource person could also function as an advocate/liaison to help handicapped students in meeting their vocational needs. If a school does not have such a counselor or resource person, then the handicapped students could be assigned to individual instructors who would be responsible for helping the student.

Helping handicapped students enhance their self-concept is perhaps just as important as helping these students overcome physical and technical difficulties.

> Research has taught us that the habilitation of exceptional learners depends on not only how competent they actually are, but also on how competent they think they are. Most exceptional learners experiencing a handicapping condition have become convinced of their own inability and worthlessness. They are quick to record all criticisms, rejections and mistakes as evidence of their own feelings of inadequacy. It is difficult for these exceptional persons to silence the conviction of their negative thoughts and behavior (Moss and Skelton, 1976).

Any efforts that instructors put forth to help students improve their self-concepts are to be encouraged and commended. Canfield and Wells (1976) have developed a handbook which describes one hundred ways to enhance self-concept in the classroom. Charles (1976), in a comprehensive treatment of individualized instruction, devoted substantial space to the student's self-concept and ways that an instructor can attempt to improve it. Whenever possible, it is beneficial to provide the student with success-building experiences. It is these successes that help in developing an improved self-concept.

Several handicapped students suggested that it would be helpful to have an opportunity, before classes begin, to visit the school and talk with the instructors, counselors, and other staff. This would give the students a chance to become familiar with the physical environment of the school and to learn where the entrances, classrooms, lavoratories, library, etc., are located.

During this orientation, the students would have a chance to talk to instructors and learn about classes. With this information, the student will be better able to select classes in which he or she has the ability to participate successfully. This meeting with instructors also provides the opportunity for the student and teacher to get to know and understand each other.

When a handicapped student must be out of school for an extended period, special arrangements can be made so that he or she can keep up with school work. In some cases, a tutor can be hired to help the student. When it is possible, a video-phone system can be used. These communication systems, available from some phone companies, connect the classroom and the student's home.

When a handicapped student is absent from school for a long period of time and loses contact with his or her classmates, he or she may begin to feel isolated and dissociated from the rest of the class. Home visits made by fellow classmates, and even instructors, are appreciated and serve to bridge this gap. Since long absences from school tend to decrease scholastic motivation, these visits can help keep the student motivated.

Becoming oriented and adjusted to a new school situation can be difficult for most students. When the student is handicapped this adjustment presents even more difficulties. To ease this orientation for the handicapped student, a "buddy" program can be created. An upper classman is paired with a beginning handicapped student to show the new student around.

It is debatable whether the "buddy" should be another handicapped student or an able-bodied student. When the buddy is an upper classman who is also handicapped, he or she is an excellent source of emotional support and encouragement. On the other hand, a distinct advantage to using able-bodied students is contact of a handicapped and nonhandicapped student promotes friendship and social acceptance. Perhaps the choice between a handicapped or nonhandicapped buddy can be made by the new student. It may even be valuable to pair the new student with two buddies (both a handicapped and a nonhandicapped student). A disadvantage to paring two handicapped students is that it promotes segregation and discrimination.

The relationship between the teacher and the handicapped student relationship is important. A positive and accepting attitude on the part of the teacher fosters a good rapport with the student and spreads to the other members of the class.

In reacting to the handicapped student, it is best to focus on a functional orientation (i.e. on what he or she can do) instead of an anatomical orientation (i.e. stressing what is missing or dysfunctional).

The teacher who establishes and implements realistic expectations, avoids under-estimating, over-indulging, or overprotecting the student and creates an atmosphere conducive to success for the handicapped student. The student should receive enough help to allow him or her an equal competitive opportunity, but not so much that other students develop real or fancied resentments at his "unfair advantage". Too little help, of course, breeds feelings of anxiety, worthlessness, bitterness, and depression in the handicapped student.

PI

Pity, or condescending behavior, from able-bodied people is generally resented by handicapped persons. A number of handicapped students expressed appreciation for a straight forward approach. A statement like, "Hey, it looks like you might need some help. Is there anything I can do?" is highly preferable to,"Oh, you poor child, let me help you!"

Finally, it is worth noting that any modifications made for handicapped students should be only those that are necessary. Special treatment may create an atmosphere that encourages the student to use his or her disability to require special privileges. A sense of dependency is also fostered which does little to prepare the student for the "real world".

PART THREE

EXAMPLES OF SUCCESSFUL CURRICULA MODIFICATIONS FOR THE PHYSICALLY IMPAIRED

A MACHINE TOOL TECHNOLOGY PROGRAM

Ordinarily, machine tool programs at vocational technical schools are not pursued by physically disabled students. Because of their disability and functional limitations, these students have difficulty performing the tasks required in the program and job. However, Chabot College in Hayward, California, has opened this field to handicapped persons. Chabot College offers a nontraditional machine tool technology program which is accessible to the handicapped student. In this program, the machines are controlled by computers using numerically coded information. Instructions to the machine are in the form of coded numbers punched into a ribbon or tape. Thus, it is possible for a physically handicapped person to learn how to operate numerically controlled machine tools and successfully enter this field of work.

DRIVER EDUCATION PROGRAM FOR THE PHYSICALLY IMPAIRED

The Center for Safety Studies at the University of Wisconsin-Stout has developed a driver education program for the handicapped (Kraemer, 1976). An instructor's manual and student handbook are available from the University.

The program, which includes 15 lessons, offers behind-the-wheel training. These lessons teach basic driving skills which are applicable to all drivers. Within each lesson, however, modifications and suggestions relevant to the handicapped student are made. These modifications include:

1. For individuals with limited gripping or turning ability in the hands, special adaptions may be needed to operate many of the switches and controls such as headlights, windshield wipers, etc.

2. For a student using hand controls, the horn button may be located on the hand control.

3. The following modifications may need to be made on the car's operational control devices:

    - adaptive steering devices
    - right side gear selector adaptor
    - left foot accelerator gas pedal
    - foot break - pedal extender
    - parking brake adapter

PI

4. It is advisable to equip the car with a CB radio, for use when assistance is needed.

5. When entering the car from the traffic side, it is important to check both front and back traffic - especially back - to see if traffic is coming. When traffic is clear, enter as usual. It is important to stay close to the car or immediately behind the car until traffic is clear.

6. Because transferring into and out of a car is time-consuming, it is important to pick safe loading areas.

7. It is a good idea to place the key in the ignition immediately upon entering the car, in order to avoid the problem of lost keys. Keys that drop to the floor present a difficulty for individuals with limited range of motion in the upper extremities.

8. Adjustment of the seat is important for the comfort and muscular efficiency of a handicapped student.

9. If the student has limited range of neck motion, it will be necessary to have trailer mirrors mounted on the sides. This is especially important for checking blind spots.

10. If turning the ignition key is difficult it may be helpful to relocate the ignition switch. Some individuals use a key extender.

11. The student's hand position on the steering wheel will depend on the nature of the disability and whether adaptive steering devices are necessary.

12. It is important for handicapped drivers to learn hand signals. Even though they may not be able to execute hand signals, they should know their meanings.

Some automobile adaptions that are helpful for disabled drivers include:

1. Automatic transmission
2. Armrests which are helpful for balance
3. Air conditioning which may be required for skin problems
4. Bench type seats (bucket seats make it impossible for the handicapped driver to enter from the passenger side and slide over)
5. Citizen's band radio in case assistance is needed
6. Cruise control makes driving long distances less fatiguing
7. Contoured seat cushions are useful for proper vision, balance and back comfort
8. Electric door locks are important for the handicapped because it may be difficult to unlock the doors individually
9. Inside-adjust mirrors
10. Power brakes
11. Power steering
12. Power seat
13. Power windows
14. Tilt steering wheels allow for easier maneuvering as the handicapped individual enters and exits the car
15. Two-door design provides more room for the handicapped driver to transfer himself or herself into or out of the car
16. Rear window defroster - scraping ice and frost is a problem for the handicapped

The following are suggestions that may be helpful in teaching the handicapped driver:

1. Be patient. The handicapped student needs additional time to complete tasks. The experience of performing and completing a task is valuable and promotes independence.
2. Be flexible. Let the student's individual needs guide the direction and timing of the learning experience.
3. Be familiar with the controls of the car, and try them out before the driving lesson.
4. Teaching the driver to back up is difficult. The driver must decide between using the mirror or looking over the shoulder.
5. Allow enough time for each car transfer.
6. Learn how to fold a wheelchair.

To be completely independent, the handicapped driver must master these tasks:

1. He or she should be able to enter and exit from the car without any assistance, except for crutches, wheelchair, etc.
2. He or she must be able to skillfully operate any special controls that must be used in order to drive a car.
3. He or she must be able to maintain proper body position and balance while driving the car.

Before teaching the driver education course, biographical and driving history data needs to be gathered. Some questions to be answered by the student include:

1. Nature of disability
2. Onset of disability
3. Limitations resulting from disability
4. Describe your strength and extent of movement in upper and lower extremities.
5. Are you presently taking any medications? If yes, please specify.
6. Do you have a history of seizures? If yes, on what date did the last one occur?
7. Do you get muscle spasms? If yes, specify location.
8. Endurance is good ____ fair ____ poor ____
9. Do you use transferring equipment to get in and out of a car? If yes, please describe.
10. Do you have a driver's license? Any restrictions?
11. Total years of driving experience.
12. Approximate annual mileage.
13. Accidents and/or violations? If yes, describe.

Questions regarding the equipment needed by the handicapped driver are also asked. The student is asked to indicate which of the following are needed:

1. Equipment
    - power steering
    - automatic transmission
    - power brakes
    - air conditioning

- power seats
- power door locks

2. Hand controls

    - type recommended (company)

      (right hand)
      (left hand)
      (center)

    - dimmer switch
    - horn button

3. Steering devices (quicktach bar/clamp on)

    - regular
    - yoke
    - open
    - amputee ring
    - quad grip
    - foot plate steering

4. Parking brake adapter (hand-operated)
5. Left foot accelerator
6. Right hand turn signal adapter
7. Left hand gear shift lever
8. Knee separator
9. Self-assist handle
10. Shoulder safety harness

    - shoulder harness
    - chest harness
    - shoulder belt
    - seat belt

11. Extensions

    - brake
    - accelerator

12. Custom-made equipment

The University of Wisconsin-Stout Driver Education Program for the Handicapped (Kraemer, 1976) is comprised of 15 lessons:

1. Introduction to the on-street (behind-the-wheel) program
2. Starting and moving the vehicle in drive
3. Steering wheel hand position, backing and hand-over-hand steering (use of adaptive steering device)
4. On-street left turns and right turns
5. City drive in quiet residential area
6. Land changes and one-way streets
7. U-turns, turnabouts and Y-turn
8. Highway driving in rural areas
9. Parking on downhill and uphill grades - uphill starting.
10. Angle and perpendicular parking of vehicle on street and in parking lots
11. City drive in a business district
12. Driving on limited access roadway (freeways, expressways, thruways, and interstates)
13. Parallel parking within "stanchions" and between "live" vehicles
14. Student route selection and drive to intra-city destination
15. Review and inventory of driver performance - urban area

    Driver performance test.

TOUCH TYPING FOR THE PHYSICALLY IMPAIRED

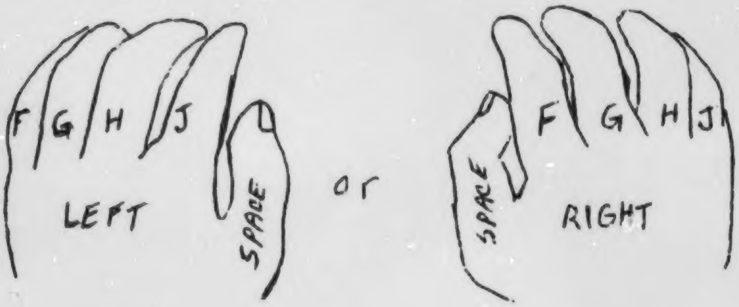
A unique typing program, created by Jack Heller (1966), teaches handicapped persons to type as effectively as nonhandicapped persons. Individuals who have missing fingers learn to type by using a mouth stick, head pointer, elbow pointer, toe, one hand or even a few fingers on one or both hands. The program also teaches the legally blind and learning disabled students to type.

The one-handed typist is taught to place the fingers of the hand on F-G-H-J keys of the keyboard (see Figure 7). The thumb is used to strike the space bar. In this position the typist can reach all the keys of the typewriter easily and comfortably. Other finger positions have been designed for students who have only a few fingers on one or both hands.

The teacher's manual includes 19 sets of keyboard charts and drill lines. The charts present new keys, and show which fingers to use to strike the keys. Each chart can be reproduced and used by the student without prior written permission. The program also teaches the fundamentals of typing, such as margins, spacing, centering, and letter-writing. The regular typing textbooks can be used for typing drills and practice lessons that do not involve new keys.

In addition, the teacher's manual contains information about various handicapped conditions and directions for constructing simple typewriter modifications.

Figure Seven
Finger Position



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RESOURCES

American Allergy Academy
225 E. Michigan Street
Milwaukee, WI 53202

American Diabetes Association
1 West 48th Street
New York, NY 10020

American Heart Association
44 East 23rd Street
New York, NY 10010

Arthritis Foundation
475 Riverside Drive, Rm. 240
New York, NY 10027

Division for the Blind and
Physically Handicapped
Library of Congress
Washington, DC 20542

Epilepsy Foundation of America
1828 L Street, N.W.
Washington, DC 20036

Institute for the Crippled and
Disabled
400 1st Avenue
New York, NY

Making Facilities Accessible to
the Physically Handicapped
State University of Construction Fund
194 Washington Avenue
Albany, NY 12210

Muscular Dystrophy Associations
of America, Inc.
810 Seventh Avenue
New York, NY 10019

Myasthenia Gravis Foundation, Inc.
230 Park Avenue
New York, NY 10017

National Amputation Foundation
12-45 150 Street
Whitestone, Long Island, NY 11357

National Association of the
Physically Handicapped, Inc.
6473 Gradville Avenue
Detroit, MI 48228

National Center for a Barrier-
Free Environment
8401 Connecticut Avenue, Suite 402
Washington, DC 20015

National Cystic Fibrosis
Research Foundation
3379 Peachtree Road, N.E.
Atlanta, GA 30320

National Easter Seal Society
for Crippled Children and Adults
2023 W. Ogden Avenue
Chicago, IL 60612

The National Foundation-March
of Dimes
P.O. Box 2000
White Plains, NY 10602

National Kidney Foundation
116 East 27th Street
New York, NY 10016

National Multiple Sclerosis Society
257 Park Avenue South
New York, NY 10010

National Paraplegia Foundation
333 N. Michigan Avenue
Chicago, IL 60601

National Spina Bifida Assoc.
of America
P.O. Box 5568
Madison, WI 53705

United Cerebral Palsy Assoc., Inc.
66 East 34th Street
New York, NY 10016

RESOURCES (cont.)

Manufacturers of Equipment

FashionAble, Incorporated
Rocky Hill
New Jersey 08553

Foley Manufacturing
3000 Fifth Street, N.E.
Minneapolis, MN 55418

Fred Sammons Incorporated
Box 32
Brookfield, IL 60513

Medical Equipment Distributors, Inc.
1215 South Harlem
Forest Park, IL 60130

Multi- Marketing and Manufacturing,
Incorporated
P.O. Box 1125
Littleton, CO 80160

Prentke Romich Company
R.D. 2, Box 191
Shrene, OH 44676

Riswell, Incorporated
P.O. Box 73
Greenwich, CT

Ronson Corporation
1 Ronson Road
Woodbridge, NJ 07095

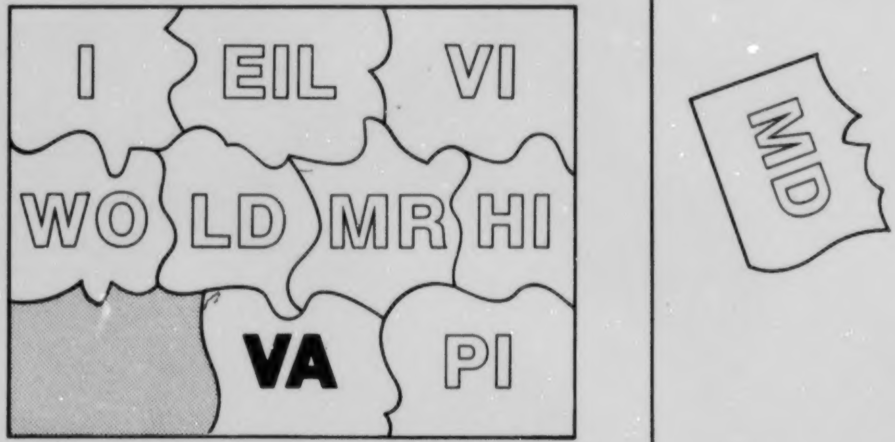
S.C.M. Corporation, Consumer
Products Division
65 Locust Avenue
New Canaan, CT 06840

Sparr Telephone Arm Company
P.O. Box 143
Allamuch, NY 07820

Summit Services
535 Division Street
Campbell, CA 95008

Typewriting Institute for the
Handicapped
3102 W. Augusta Avenue
Phoenix, AZ 95021

CHAPTER IX



Vocational Assessment

Carol B. Crowley
John J. Gugerty

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PART ONE
INFORMAL ASSESSMENT

AN OVERVIEW OF INFORMAL ASSESSMENT

Informal assessment of students can be a valuable tool for the vocational teacher. It can aid in planning classroom activities that provide the most effective learning environment for each student. It can also aid in identifying and getting help for those students who risk academic failure.

Informal assessment is distinguished from formal assessment in its objectives, setting, evaluator, and materials. Informal assessment is aimed at identifying students with learning problems, diagnosing students' academic strengths and needs, and providing information which aids in planning lessons for individual students. It is usually performed in a classroom setting by the teacher. Either materials actually used in the class, or materials designed to be similar to class activities, are used.

Moran (1978) argues that the purpose of formal evaluation is to identify problems and strengths in the student's internal processes. Various evaluation experts are charged with specifying the source of a student's difficulties, whether these be hearing or vision deficits, emotional traumas, personality flaws, coordination problems, or others. Such formal assessment procedures help in classifying students as handicapped and in qualifying them for special education services. They often do not, however, provide the specific information needed to plan or modify classroom activities to meet the needs of such learners. The classroom teacher is the expert in identifying and meeting the student's academic needs.

PLANNING FOR INFORMAL ASSESSMENT

There are two main approaches to informal evaluation. The first is to perform one or more procedures which provide data about all the students in a class. The other is to perform increasingly detailed analyses of the problems and abilities of individual students as the need for such information becomes apparent. The advantage of the former approach is that students with less obvious needs may be noticed, and thus be helped sooner. In addition, it is appropriate to test the preferred learning styles and other attributes of excellent and poorer students alike. The second approach is valuable because it allows the instructor to avoid unnecessary testing of students whose learning styles are compatible with the instructor's teaching style.

Whichever approach, or combination of the two, a teacher elects to use, some general guidelines should be kept in mind. First, he or she must identify the professional needs to be met by informal assessment. A teacher who has ready access to students' school records will have different needs than a teacher in a postsecondary situation where many students' records are impossible to obtain. A teacher with mainstreamed handicapped students who has a close working relationship with the special education or resource room teacher, will have different needs than the instructor who does not know whether (or which) students may be handicapped.

Obviously, the earlier in the semester informal assessment can be completed, the more useful the results will be. Students who are deficient in the basic skills can be helped more easily if remediation is provided before they are allowed to fall too far behind. Students with strong preferences for one learning style over another can also be identified before too many lessons are lost. Students with physical impairments which make participation in the vocational field more difficult, can be recognized and accommodated. The modifications needed by such students are more easily and much more effectively made early in the program.

Once the needs which will be met by informal assessment are identified, goals and objectives should be sketched. The teacher will need to consider the following questions: Will the informal assessment procedure be used to refer students for formal evaluation? Is information to be used to plan group activities? Is information needed to provide for students' individual learning style preferences? Is information about students' reading and math skills needed? Is it important to know about students' coordination, stamina, fine motor control, or other physical attributes?

Thus, the teacher must decide:

1. What information is likely to be needed
2. About whom it is needed, and
3. How the information will be used, in order to select goals and objectives for the informal assessment process.

The next issue is selection of tools: How will the information be gathered? Some basic kinds of informal assessment tools are:

1. Behavioral observation
2. School records and, if applicable, formal evaluation results
3. Teacher-made tests of
    - learning styles
    - basic skills
    - vocational awareness
    - physical skills
    - social/emotional attributes
4. Informal instruments developed by others to assess:
    - learning styles
    - basic skills

Details of each of these important tools for informal assessment are discussed below.

BEHAVIOR OBSERVATION

Theorists in the field of informal assessment disagree about the purpose of behavioral observation in informal assessment. Some see it as an initial cursory check to divide a class into two groups: those who are academically competent and those who should receive further informal assessment. Other writers see behavioral observation as a method of rating students on the less tangible aspects of vocational success, such as cooperation or good judgment. Both approaches suggest that the student be observed during normal class activities. A third kind of behavioral observation evaluates student performance on specially-designed work samples, and will be discussed on page 403.

Moran (1978) suggests that the teacher gather informal impressions of students' academic behaviors through incidental observation. The purpose of such observation is to divide the class into two groups according to two basic questions: "Which students demonstrate age-appropriate and grade-level academic behaviors within the normal range for students in this classroom?" and, "Which pupils stand out in some way as exhibiting unusual academic behaviors?" (p. 14). These form the basis for determining which students need further diagnosis and which do not. Moran also argues that this early observation should be based solely on academic behaviors for two reasons. First, she states that teachers are experts in making academic judgments. Focusing on academic behaviors will help the teacher organize his or her observations without becoming distracted by the many other kinds of behaviors seen in a classroom. Second, Moran reasons that "if language, perceptual, motor, social, or emotional problems of a given student are serious enough to warrant intervention, they are sure to be manifested in failure to respond to instruction, and thus it is more likely that they will be identified if the focus is on academic performance. If such problems do not inhibit academic growth, there may be no justification for action by the teacher," (p. 14-15).

Cautioning teachers not to rely on prior information about students, either from other teachers' comments or past experience with siblings, the following behaviors are listed as questionable in individual students (Moran, 1978, p. 16):

1. One who does not complete a reasonable quantity of work within the time allotted for independent work
2. One who does not follow directions, resulting in work prepared inaccurately or at variance with verbal or written instructions
3. One who requests frequent teacher aid (e.g., not beginning work upon oral directions but waiting for the teacher to demonstrate the task)
4. One who reads orally with many word-recognition errors or demonstrates poor comprehension of what was read

5. One whose approach to tasks is exceptionally slow, purposeless, or disorganized
6. One who frequently cannot locate the place in the text, loses work papers, or does not move to the proper location with the group during instruction
7. One who demonstrates a tremor when holding a pencil or other tool
8. One who stares into space, engages in repetitive motor activity, or exhibits other competing activity during independent work periods
9. One who overreacts when a task becomes frustrating
10. One whose language or speech gives the impression of a chronologically younger student
11. One who seems to master a concept today but forgets it tomorrow
12. One who must be given a number of trials to complete a task.

The author emphasizes that it is the atypical or broad extremes of these or other behaviors which should attract the teacher's attention. Further, such behaviors serve to indicate that more information about the individual is needed; not that the student should be labeled or ignored.

Hartley, Otazo, and Cline (1979) take a different approach to behavioral observation in an informal assessment process. They developed modules which provide written tests of basic skills in sixteen vocational program areas. (These written tests will be discussed on pages below.) With this approach to academic assessment, the authors use behavioral observation to assess daily living competencies, personal characteristics, work aptitudes, and motor skills.

Hartley, Otazo and Cline have developed matrices (Figures One, Two, Three and Four) with which a vocational teacher can assess student competencies in areas which are not easily quantifiable. The authors emphasize that the matrices should be used as diagnostic tools to help establish goals and objectives for individual students. They remind the user that there may be many reasons for below-average results of performance, including stress and poor health. They suggest that the teacher observe the student over a period of some weeks in several different situations to obtain an accurate average picture of the student's behavior in the vocational class.

Figure One
Daily Living Competencies Checklist

DIRECTIONS: Please check the level each student is at according to the following scale.

1. poor	3. average	5. very good
2. below average	4. good	6. n/a

STUDENT MATRIX SKILLS CHECK LIST									
DAILY LIVING COMPETENCIES:									
Can give personal information									
Money concepts									
Transportation abilities									
Job seeking skills									
Completes work									
Understands directional terms									
Understands safety rules									
Demonstrates cooperation with others									
Punctuality									
Attendance									

from Hartley, N., Otazo, L., and Cline, C. Assessment of Basic Vocational Related Skills. Greely, Colorado: University of Northern Colorado, 1979.

Figure Two
Personal Characteristics Checklist

DIRECTIONS: Please check the level each student is at according to the following scale.

1. poor
2. below average
3. average
4. good
5. very good
6. n/a

STUDENT MATRIX SKILLS CHECK LIST											
PERSONAL CHARACTERISTICS:											
Grooming											
Personal Hygiene											
Physical Tolerance Full Workday											
Peer Relationships											
Self-Confident											
Works Well Alone											
Works Well in Group											

from Hartley, N., Otazo, L., and Cline, C. Assessment of Basic Vocational Related Skills. Greeley, Colorado: University of Northern Colorado, 1979.

Figure Three
Work Aptitudes Checklist

DIRECTIONS: Please check the level each student is at according to the following scale.

1. poor
2. below average
3. average
4. good
5. very good
6. n/a

STUDENT MATRIX SKILLS CHECK LIST										
WORK APTITUDES:										
Follows Written Instructions										
Follows Verbal Instructions										
Follows Demonstration										
Retains Instructions										
Improves with Repetition										
Conceptualizes the Problem										
Follows Multi-step Instruction										
Uses Good Judgement										

from Hartley, N., Otazo, L., and Cline, C. Assessment of Basic Vocational Related Skills. Greely, Colorado: University of Northern Colorado, 1979.

Figure Four
Motor Skills Checklist

DIRECTIONS: Please check the level each student is at according to the following scale.

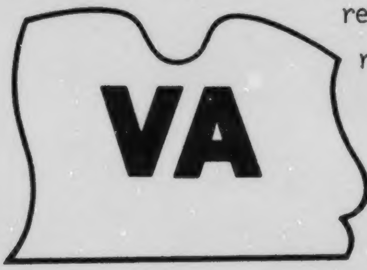
1. poor	3. average	5. very good
2. below average	4. good	6. n/a

STUDENT MATRIX SKILLS CHECK LIST										
MOTOR SKILLS:										
Perform Manipulative Tasks										
Move Around Objects										
Use Large Tools										
Small Motor-eye-hand Coordination										
Two-Hand Coordination										
Use Small Tools										
Finger Dexterity										
Steady Work Pace										
Heavy Lifting										

from Hartley, N., Otazo, L., and Cline, C. Assessment of Basic Vocational Related Skills. Greely, Colorado: University of Northern Colorado, 1979.

EXAMINATION OF SCHOOL RECORDS

Cumulative records can provide useful information about students' past experiences in school. However, caution should be used in approaching them. If a teacher's first impression of a student is gained through the records, inaccurate expectations may cloud the teacher's perception of the individual. A student who was a little slower in gaining social maturity may no longer deserve the negative comments earlier teachers entered in his or her folder. A low score on a standardized test may reflect a lack of interest in the test situation, rather than a lack of aptitude. Special education placement in earlier grades may have been for a developmental lag which has now been overcome, and does not necessarily indicate current learning problems. With these cautions in mind, however, suggestions are offered for reviewing school records (Moran, 1978):



1. Determine whether the student has recently been referred for special education evaluation.
2. Determine the pattern of grades in prior years to establish the time of onset of any difficulties. "If the record indicates that below-average grades began in the first grade and continued to the present, the question of developmental disabilities may be raised. If, instead, the student earned average grades in the early years but demonstrated a reversal in the intermediate grades, a situational disturbance or emotional problems manifested in low achievement would be more likely than would retardation or learning disability" (p. 17-18).
3. Compare the pattern of grades with the attendance record. "The record should be checked for length of absences, time of year when they occurred, and the grades which followed each period of absence. If lengthy absences occurred in first or second grade, inadequate continuity of instruction in basic skills is as suspect as is any handicapping condition to explain academic problems. Periods of frequent absences over several years suggest serious health or family problems, while absence only during the winter months may indicate chronic upper respiratory infections warranting investigation of possible hearing loss and language retardation" (p. 18).

4. Check the number of schools the student has attended. A student who has attended many different schools, especially in the early grades, may have trouble in the basic skills because of a lack of continuity in the way instruction was presented.
5. Check standardized test results with caution. The global percentile rank or grade equivalent scores on standardized tests are not accurate enough to provide needed information about students who are having difficulty in class. If the student's completed test booklets are available, these may give some clues as to whether the student completed the test or quit trying; whether he or she had difficulty with one type of question or one section of the test; or whether he or she might have misunderstood the directions.
6. Check group IQ test results with equal caution. The results of such tests are designed to indicate a probability range within which the student functions (if he or she felt well and was interested on the day the test was given). Such scores may provide an indication of trouble if the student's grades are much below his or her indicated I.Q. range or if his or her performance in class seems much above his I.Q. range.
7. Check the student's medical or health record, "to determine whether a hearing evaluation has been recommended following a sweep check, whether the pupil has passed vision screenings, and whether any chronic illnesses are recorded. The nurse may also know if any medications are administered at home before the pupil comes to school. The record may show that the student once wore glasses, although the teacher notes that he or she is not now wearing them (or contact lenses). Indications that vision or hearing should be evaluated clinically are frequently uncovered by checking the health record" (p. 20).

TEACHER-MADE TESTS

Informal tests of student abilities and skills, designed by the vocational teacher for a specific program, offer many advantages. First, such tests meet the teacher's information needs better than other kinds of tests. Secondly, such tests can be constructed with the specifics of the program in mind. They can, for instance, test the specific math skills needed in the program, rather than a more general set of math knowledge. Thirdly, they can often be planned to mesh with on-going instruction, rather than taking time away from classwork. Fourth, when money is not available to buy tests from others, teacher-made tests may be the only tool available for informal assessment.

Drawbacks to teacher-made tests are mainly those of attitude and time. A teacher who uses informal tests independently to categorize or label students may be overstepping the intent of such assessment. (This would also be a problem if informal assessment developed by others were similarly misused.) Reading, for example, is a complex and incompletely understood process. A reading specialist or a psychologist might be qualified to invent and administer tests to determine specific difficulties. Without extensive training in this area, a vocational educator would not be qualified to diagnose problems. The vocational educator can appropriately try to answer the question, "Is this student capable of learning from the written materials used in my class; and if not, what can I do about this problem?" The vocational educator's informal assessment should not be designed to answer questions about a student's special education status. Rather, it should only attempt to raise such questions for others to answer through referral for formal evaluation.

The second major drawback to teacher-made tests is the time it takes to construct them. Depending on the nature of the tests and the number to be devised, the initial investment of time may be considerable. Two factors serve to ease this burden, however. First, as long as a course remains basically the same, and as long as textbooks are not changed, one test may serve informal assessment needs for a number of years. Also, construction of such tests may take less time as teachers become more practiced in devising and using them. Therefore, time needed to prepare for informal assessment should diminish after the original investment is made. The second factor which may help ease the teacher's time problem is the increasing recognition of the importance of informal assessment. Inservice and summer workshops are more frequently available to provide reimbursement for developing such instruments. In addition, specialists in reading, in math, or in evaluation techniques, are sometimes available in such workshops to offer assistance as teachers design their own tests.

A General Informal Assessment Battery

The W.V.S.C. Informal Vocational Assessment Battery (Crowley and Gugerty, 1979) was developed as a guide to integrating several informal teacher-made assessment procedures. The technique described in Figure Five would take about two hours of class time, but could yield results which would save much more time and trouble later. (See pp. 409-412.)

As is appropriate for all informal assessment activities, the series of tests described here serves as a beginning, not an end. Questions are raised, referral needs are noted, hypotheses are formed. These serve as a basis upon which appropriate individualized instruction can be planned. As has been emphasized, an informal assessment procedure such as this can raise some questions about the possible presence of handicapping conditions in individual students. Such questions can only be answered by referring the student to a qualified specialist for formal evaluation.

Reading Tests

Reading tests can be used in two ways: either the reading material can be tested, or the reading skills of individual students can be assessed. The first sample below illustrates one method of testing the overall appropriateness of the reading level of material for a class. The second sample describes an approach to designing a student reading skill assessment instrument.

Cloze Technique

This system gives a good estimate of how well a particular group can handle a piece of material. Rather than predicting a certain grade level of difficulty, it indicates how well the group would score on a well-constructed multiple-choice test covering the same material. The steps to be followed are:

1. Identify a set of samples from various parts of the book or other material to be tested. When testing the material with one class of about 30 readers, the total sample must be at least 625 words long. For several classes, 500 words is probably a large enough sample.

2. Type out the total sample, substituting a 15-space blank for each fifth word (words 5, 10, 15, 20, and so on). The final product will be something like this: "As a teaching area, __________ Arts draws upon all ___________ ways humans communicate with __________ other: speaking, listening, reading __________ writing. The effective teacher___________ Language Arts, then, is ___________ who is able to bring __________ all these separate activities ___________ such a way as __________ focuses upon their one __________ factor: thinking".

3. Distribute the exercise(s) to the class, and give the students all the time they need to replace the omitted words. After they are through, average the number of words exactly replaced by the group. No synonyms are allowed. Divide this average by the total number of blanks to get average percentage of words replaced.

4. Multiply this figure by 1.67 and you will have a good estimate of the average comprehension you can expect from the group. Anything below 80-85% potential comprehension (approximately 50 percent exact replacement) indicates that the material is probably too difficult for this particular group.

   SAMPLE:

   - Number of students in class = 30
   - X = number of blanks to be filled
   - Y = total number of blanks to be filled by 30 students (30 x X)
   - Z = total number of blanks correctly filled by 30 students
   - $\frac{Z}{Y} \times 1.67$ = _____________ x 100 = _________%
     or average comprehension that can be expected from a class

Individual Reading Skills Assessment

Informal assessment of students' abilities to read the specific materials used in class can be designed by vocational teachers. Tests can be designed to assess either silent reading comprehension or oral reading comprehension. Oral reading tests can give the diagnostician many clues about the problems the student is experiencing in the reading process. A description of such tests is not included here, however, for two reasons. First, most reading done in vocational education classes is silent; few, if any, vocational courses require oral reading as a job-related skill. Second, the vocational teacher only needs to know whether a student can comprehend the material he or she will be asked to read for class. If a student cannot read well enough, modification of class presentation modes and/or referral to a reading specialist may be appropriate. Most vocational instructors are not qualified to diagnose and remediate reading process problems.

The staff of the Child Service Demonstration Center, Cushing, Oklahoma, suggest the following steps in the process of constructing a test of silent reading comprehension:

1. Select a passage from the textbook or other frequently-used reading material. The passage should be about 100 words long, and fairly complete in its meaning.
2. Prepare a question or motivating purpose for reading the passage. This should be a broad, general purpose encompassing the entire selection.
3. Develop 8 to 10 comprehension questions to evaluate the student's understanding. Questions should be written at a variety of comprehension levels.
4. To administer the test, state the motivating question, have the reader read silently, ask the comprehension questions or have the student answer them on paper. Compute the comprehension score as follows:

$$\text{- Comprehension Score} = \frac{\text{Number of Answers Correct}}{\text{Number of Answers Possible}} = \_\_\_\_\%$$

A score below 75% indicates that the material is at the student's frustration level. It is too difficult for the student, and frustration, anger, or despair are likely to result if the student is required to read extensively from this source. A student whose score is 75% is not at an independent reading level for that text. This student can read the material, but only if someone is available to help him or her with words that are unfamiliar. A student who scores 90% is approximately at the independent reading level. This implies that the student can learn the content of the material, because little or no help with the reading process is needed (Potter and Rae, 1973). The Child Service Demonstration Center Staff (p. 37) also offers fifteen guidelines for writing questions which will test a student's reading comprehension.

1. Questions should be in the approximate order the information is presented in the passage.
2. It is generally preferable to place a main idea question first.
3. Ask the most important questions possible.
4. Check the sequence of questions to insure that a later question is not answered by an earlier one.
5. Check questions to insure that two or more questions do not call for the same response, fact or inference.
6. A question that is so broad that any answer is acceptable is a poor question.
7. A question that can be answered by someone who has not read the passage (except for some vocabulary questions) is a poor question.
8. Avoid questions that require knowledge based on the student's experience rather than from reading or applying information given in the story.
9. Keep questions short and as simple as possible. Do not include irrelevant statements.
10. Avoid stating questions in a negative manner.
11. Avoid overusing questions which require students to reconstruct lists, such as "List five ingredients", or "Name four characters". Anxiety or memory instead of comprehension may influence the student's performance.
12. Avoid writing questions with multiple answers that fail to establish specifications for the response:
    - Poor: What happened after Susan heard the telephone?
    - Better: What was the first thing that happened after Susan heard the telephone?
13. Do not mistake a question that calls for the reporting of several facts or details for an organization or sequence question.
14. Avoid stating a question as if to call for an opinion when asking the student to relate a fact.
    - Poor: How do you think Skip got to the store?
    - Better: How did Skip get to the store?
15. Avoid asking questions on which the student has a fifty-fifty chance of being correct -- "yes-no" questions, or "either-or".

Work Samples

A work sample is a carefully constructed test of a student's ability to perform a sample task related to the vocational area in which he or she is interested. Lesher (n.d.) lists twelve benefits of work samples, including:

- Work samples afford the opportunity to observe actual work behavior in a controlled setting.
- Persons who are evaluated through work sampling see themselves as working, rather than taking a test, and have a more positive attitude toward the experience, are more interested in the task, and will expend greater effort on it.
- A more realistic picture of the student's capabilities can be gained because factors affecting test scores, such as insufficient motivation, excessive anxiety, cultural differences, and language disabilities are less likely to influence work samples.

A current project at Rutgers University uses work samples designed by vocational teachers to assess handicapped students' present level of performance; information that is needed to write Individualized Education Programs. Guidelines are offered for constructing valid work samples and evaluating a student's performance on the sample.

Hux (1979) suggests two approaches to selecting tasks which may be appropriate for a work sample:

1. List tasks that are most commonly performed in the vocational field, in order of frequency.
2. Identify tasks requiring competencies that are representative of the occupation as a whole.

Using either one or both criteria together, the teacher should try to identify at least five tasks. The selection of one of these five tasks as best suited for development as a work sample is based on six issues:

1. Which task is most representative of the occupation?
2. Which requires a progression from simpler to more complex behaviors?
3. Which requires both gross and fine motor skills?
4. Which does not require too much reading?

5. Which can be completed in a short or manageable length of time?
6. Which is complex enough to allow observation of emotions and attitudes such as frustration or persistence?

The task which seems to best answer these six questions should be selected for development as a work sample. Hux reports that, in most cases, the choice is fairly obvious once the above questions are considered.

The researchers further indicate that because of the basic nature of the task selected, job sheets or other teaching tools are often readily available. Little modification may be needed to teach the task as a work sample. The recommended procedure is for the teacher to demonstrate the work sample task, and then ask the student to perform it. If any reading is required, the material should be written at about the fifth grade level.

In evaluating a student's performance, at least one factor from each of the four following behavior groups should be rated:

Group One

- eye-hand coordination
- manual dexterity
- bi-manual coordination
- use of hand tools
- measuring ability
- work pace

Group Two

- attention span
- ability to follow a model
- ability to follow verbal instruction
- performing a sequential task

Group Three

- persistence
- frustration tolerance
- maturity

Group Four

- response to praise
- response to criticism
- reaction to assistance
- attitude toward work

A more accurate assessment may be obtained if two teachers simultaneously rate a student's performance on previously specified items from these lists.

Hux reports that there are several advantages to using work samples. Because of their minimal reliance on reading skills, a student's abilities can be assessed more accurately. In addition, problems in such areas as space perception or muscle strength, which are often hard to identify before a student enters a program, can be isolated.

INFORMAL INSTRUMENTS DEVELOPED BY OTHERS

Increasing recognition of informal assessment as a powerful tool in individualizing education has encouraged the development of effective instruments by researchers. Generally these instruments have focused on learning styles or on academic and vocational skills, but not on both. The tests described here are selected as examples of different approaches used in informal assessment.

C.I.T.E. Learning Styles Instrument

The C.I.T.E. Instrument (Babich, Burdine, Albright, and Randol, 1976) was formulated to help teachers determine the learning styles preferred by their students. It is divided into three main areas: information gathering, work conditions and expressive preference. Information gathering includes auditory language, visual language, auditory numerical, visual numerical, and auditory-visual-kinesthetic. Work conditions focus on whether a student works better alone or in a group. Expressiveness preference considers whether a student is more effective with oral or written communication. Each of these nine styles areas of the C.I.T.E. Instrument is described below as if the student had a strong preference for that particular style.

1. Auditory Language

   - This is the student who learns from hearing words spoken. He or she may vocalize or move his or her lips or throat while reading, particularly when striving to understand new material. He or she will be more capable of understanding and remembering words or facts that could only have been learned by hearing.

2. Visual Language

   - This is the student who learns well from seeing words in books, on the chalkboard, charts or workbooks. He or she may even write down words that are given orally, in order to learn by seeing them on paper. This student remembers and uses information better if he or she has read it.

3. Auditory Numerical

   - This student learns from hearing numbers and oral explanations. Remembering telephone and locker numbers is easy, and he or she may be successful with oral number games and puzzles. This learner may do just as well without his math book, for written materials are not important. He or she can probably work problems in his head, and may say numbers out loud when reading.

4. Visual Numerical

   - This student must see numbers - on the board, in a book, or on a paper -- in order to work with them. He or she is more likely to remember and understand math facts when they are presented visually, but doesn't seem to need as much oral explanation.

5. Auditory-Visual-Kinesthetic Combination

- The A-V-K student learns best by experience -- doing, self-involvement. He or she profits from a combination of stimuli. The manipulation of material along with accompanying sight and sounds (words and numbers seen and heard) will aid his or her learning. This student may not seem to understand or be able to concentrate or work unless totally involved. He or she seeks to handle, touch and work with what he or she is learning.

6. Individual Learner

- This student gets more work done alone. He or she thinks best and remembers more when the learning has been done alone. This student cares more for his or her own opinions than for the ideas of others. Teachers do not have much difficulty keeping this student from oversocializing during class.

7. Group Learner

- This student prefers to study with at least one other student, and will not get as much done alone. He or she values others' opinions and preferences. Group interaction increases his or her learning and later recognition of facts. Class observation will quickly reveal how important socializing is to this student.

8. Oral Expressive

- This student prefers to tell what he or she knows. He or she talks fluently, comfortably, and clearly. Teachers may find that this learner knows more than written tests show. He or she is probably less shy than others about giving reports or talking to the teacher or classmates. The muscular coordination involved in writing may be difficult for this learner. Organizing and putting thoughts on paper may be too slow and tedious a task for this student.

9. Written Expressive

- This learner can write fluent essays and good answers on tests to show what he or she knows. He or she feels less comfortable, perhaps even

> stupid, when oral answers or reports are required. His or her thoughts are better organized on paper than when they are given orally.

The C.I.T.E. Learning Styles Instrument is seen in Figure Six (pp. 413-414). It is a self-report form which asks students to rank each statement with a number from 4 ("most like me") to 1 ("least like me"). To administer the C.I.T.E., the teacher needs to distribute tests and answer sheets to each student. The class should understand clearly that the statements are not questions with right or wrong answers, and that no grades will be given. Students' responses should reflect their feelings, and usually their first choice will be best. Students should be sure to respond to every question. To accommodate those who prefer auditory to visual stimuli, or for non-readers, the teacher should read each statement aloud and allow a few seconds for the students to answer.

To score student responses to the C.I.T.E. Instrument, use the score sheet (Figure Seven). The numbers listed under each of the nine learning style areas designate the statements on the Instrument which measure the particular style. For example, statements 5, 13, 21, 29 and 37 all measure the visual language style of learning. To determine a student's score for each style:

- first, look up the response given for each statement and write it in the appropriate blank
- second, total up the numbers in each learning style category
- third, multiply the totals by 2.

In many classes it is possible for each student to score his or her own instrument and graph the results for easy compilation by the teacher. A score of 33-40 indicates that this is a major learning style for the student. He or she prefers this mode of learning, feels comfortable with it, and uses it for important (to the student) learning. A student does not necessarily have one and only one preferred style. A score from 20-32 shows a minor learning style. The student uses this mode, but usually as a second choice or in conjunction with other learning styles. A score below 20 indicates a negligible learning style. He or she prefers not to use this if other choices are available.

Assessment of Basic Vocational Related Skills

Hartley, Otazo, and Cline have developed a series of sixteen informal assessment modules representing seven service areas of vocational education. The modules include:

- welding
- agriculture
- graphic arts
- woodworking
- automotive
- auto body
- drafting
- sheet metal
- health occupations
- world of work
- food preparation
- child care
- distributive education
- electricity
- horticulture
- business and office occupations

The modules were developed to enable teachers to assess and identify some of the areas in which special needs students may encounter learning difficulties. The modules are intended to provide information that will enable vocational teachers to modify their materials or lessons based on the results of the assessment. The authors suggest that the information obtained from the assessment may be used for:

1. Grouping of students with similar instructional needs
2. Placement of students in the programs
3. Modification of instructional materials
4. Writing goals and objectives for the student

5. Obtaining remedial help
6. A model for developing materials
7. Writing contracts for behavioral change
8. Giving specific information to supplemental services or support staff for assistance.

Each module contains basic academic skill assessment, motor skill assessment, and interest assessment. The module entitled "World of Work" has two additional assessment areas: "Following Directions" and "Safety Warnings Quiz". It was written specifically for students in disadvantaged and handicapped programs.

The basic skills assessment unit in each module includes tests of reading skills, listening skills, using a book to locate information, and mathematics. In designing the reading skills section, the authors located vocational or prevocational textbooks related to the particular module's topics in use in Colorado vocational classrooms. They then selected a paragraph written at the fourth through eighth grade level and one written on the ninth through twelfth grade level. Questions were then written to determine the student's ability to understand the easier and the more difficult material. Specific skills tested are vocabulary, main ideas, details or facts, and inference or logical deduction. Five vocabulary questions are asked; each correct answer is worth one point. For each of the other abilities one question is asked, and a scale of one to five points is given to score the student's answer. For example, in scoring the main idea question, an answer showing little comprehension is worth one point; one showing understanding of the whole paragraph is worth five points. In scoring this and all the other tests, the authors recommend taking note of any student who scores less than 50% of the total possible score. They also state, "Those students who have trouble with both paragraphs will find it difficult to learn through reading" (p. 2).

Listening skills are assessed by having students fill in blanks on a test sheet while listening to a textbook passage read out loud, once quickly, and again, slowly. Students are asked to read the test sheet before listening to the paragraph. For example, the first sentence in the drafting manual's listening skills test is: "The T-square is composed of a long strip, called the blade, fastened rigidly at right angles to a shorter piece called the head." The first two questions on the corresponding test sheet are: "1. The T-square is made of a long strip, called the ______", and "2. This is fastened at _______ angles to a shorter piece called the ________".

In scoring the listening skills test, the total number of correct words filled in the blanks is the number correct. Teachers are asked to accept reasonable substitutes for the words and to overlook poor spelling.

Using a table of contents and an index from appropriate vocational textbooks, the third basic skills test is designed to indicate the student's information-locating ability. Five questions are asked for each of the two areas, and each correct answer is worth one point.

The mathematics test assesses skills across vocational areas. It includes ten questions on basic skills and sixteen items related to diverse mathematical areas. The test usually takes about one hour, but it is recommended that the student be given extra time if necessary. The authors note that it is easy to tell in which skills a student may be weak by referring to the test itself, and add that this is most important when a student has made only a few errors.

In addition to the basic skills tests, the modules assess the student's motor skills and vocational awareness. The authors' behavior observation matrices on pages 6, 7, 8 and 9, serve this function. In addition a vocational awareness questionnaire, adapted from the St. Louis Special School District, is included in each module.

SUMMARY

The vocational educator's choice of which of the above kinds of informal assessment to employ will rest on a number of factors, including time, money, and the availability of assistance. When these issues have been considered, a plan for informal assessment activities can be developed to fit the specific needs and situation of the educator. One teacher may use it primarily as a guide to meeting the needs of individual learners in the classroom. Another may wish to identify those students who should be referred for formal evaluation. A third may use it for both purposes simultaneously. With any of these goals, informal assessment can be an important and useful tool for the vocational educator.

Informal assessment can be most effective in planning and programming for special needs students when used in conjunction with formal evaluation results. The teacher and the evaluator together can design a program to help the special student succeed in vocational education. Such cooperation can be enhanced if the classroom teacher knows what to expect from formal vocational evaluation. Answering the most frequently-asked questions about formal vocational evaluation is the focus of the second part of this chapter.

Figure Five

INFORMAL VOCATIONAL ASSESSMENT BATTERY

Carol B. Crowley and John J. Gugerty
Wisconsin Vocational Studies Center

Round One

5 minutes	Explain to the students that the assessment program will be brief, that it is a tool to determine how best to meet their needs, and that it will not affect their grades in any way. Ask the students to take 15 minutes to write an essay on "What I Expect to Learn from this Class" or "How this Class Relates to my Career Goal" or some similar topic.
15 minutes	Students write essays.
10 minutes	Give a lecture on some specific class topic which is unrelated to the class plans for the following five days. Use no visual aids.
10 minutes	Read ten questions to the students, based on the lecture material. They should require short (one letter or one word) answers.
15 minutes	Have the students read a technical passage in the textbook, unrelated to the class activities planned for the next five days.
10 minutes	Ask students to answer a written ten-question multiple-choice test on the assigned reading material.
10 minutes	Demonstrate a task related to the class topic.
10 minutes	Have students perform the task demonstrated.

Round Two

(Three to Five Days Later)

10 minutes	Read to the students ten questions that are similar, but not identical, to those of Round One. The questions should relate to the same lecture material. Again, students answer with one-letter or one-word responses.
10 minutes	Students answer a second written, ten-question, multiple-choice test on the Round One reading assignment.
10 minutes	Students again perform the task demonstrated in Round One.

Figure Five (cont.)

Regardless of the identified handicapping conditions of students in the class, the teacher may want to look at the following assessment results for each individual:

a. *Essay*

- overall quality
- specificity of course or career goals
- realism of expectations for the class

b. *Comparison of discrete lecture, reading, and demonstration tasks*

- overall quality
- differences in abilities shown for each input/output mode
- differences in quality of short-term versus long-term memory, as indicated by comparing immediate test results with those obtained in Round Two:
    - overall
    - by input/output mode

Essay results can provide much to consider.

a. *Questions about the possibility of a learning disability might be raised by:*

- letter or number reversals, e.g. stuby for study; 1799 for 1979
- misspelling of simple words, e.g. prak for park; hapy for happy
- words spelled phonetically, e.g. telafone for telephone
- omission of words or letters
- incomplete or run-on sentences
- terrible penmanship, or writing which does not stay on the lines of ruled paper
- lack of organization, e.g. no paragraphs
- a messy-looking paper, with many words crossed out and many erasures
- expressions of insecurity or self-doubt about his or her ability to succeed in school

TOGETHER WITH

- adequate vocabulary
- reasonable expectations of the class
- clear train of thought

b. *Questions about the possibility of a developmental disability might be raised by:*

- misspelling of longer words; phonetic spellings
- missing punctuation
- lack of organization
- simple vocabulary
- short sentences
- unrealistic expectations of class
- insecurity or self-doubt about his or her ability to succeed in class

Figure Five (cont.)

- a relatively short essay, compared to those of other students
- concrete thought, with abstract concepts seldom expressed

c. *Questions about the possibility of an emotional impairment to learning might be raised by:*

- lack of organization; incoherent sentences or paragraphs
- unrealistic expectations of the class; possibly very grandiose plans for the future
- extreme self-doubt or self-confidence
- strong negative feelings about, or fears of, other class members, teacher or aide.

Also note extreme reactions while writing the essay, such as:

- loud complaints about the assignment
- excessive anxiety
- excessive suspicion of the teacher's motive in making the assignment
- inappropriate mannerisms
- refusal to do the assignment
- excessive need to explain in person why the assignment was not done, or was done in a particular way.

Student performance on each of the discrete learning tasks can also be analyzed. Further questions may be raised if a student's performance in one type of learning contrasts with performance in another area. Comparing the results of the three discrete types of tasks (listening, reading, and performing) can help the teacher begin to identify students' specific learning assets and deficits.

a. *Questions about the presence of a learning disability might be raised by:*

- much better performance with one type of instruction than another
- verbal or demonstrated understanding of the work that is much greater than that indicated on written tests

b. *Questions about the possibility of a developmental disability might be raised by:*

- low over-all functioning
- mistakes in understanding directions
- more time needed to complete the test or task than other students
- re-test results which are much lower than immediate results

Figure Five (cont.)

c. *Questions about a student's emotional reactions might be raised by:*

- one or more tests not attempted, or given up before time is called
- hostility or resentment of the assessment situation
- excessive need for teacher reassurance during or after the assessment situation
- withdrawal, anxiety, or depression during or immediately after the test

d. *Questions about the possibility of students with undetected hearing or vision problems might be raised by:*

- wide differences in functioning on the discrete tests
- evidence of straining to see or hear
- complaints about volume or sight problems

The physically, visually, or hearing handicapped student should be included in the assessment process with the rest of the class, as much as possible. This will give the teacher a good idea of the student's abilities and of the changes needed to help the student succeed. For example, if a hearing impaired student in the class has an interpreter assigned to him or her, ask the interpreter to sign the lecture and test questions. If not, let the student lip-read your lecture and questions. This may be very frustrating for the student, but it will help the instructor understand the importance of visual cues to this learner. Since these assessment results will not be reflected in the student's grade, the more accurately the procedure reflects the student's normal classroom situation, the more useful the results will be.

a. *The effects of movement-related barriers may also become apparent during the assessment process or during initial class periods. These include:*

- time pressures
- walking long distances
- waiting in a standing position
- sitting down and/or getting up
- moving in crowds
- carrying things
- reaching and handling

b. *Students with psychomotor handicaps may also evidence fears of:*

- getting lost
- danger to personal safety
- embarrassment at inept behaviors

Figure Six

C.I.T.E. LEARNING STYLES INSTRUMENT

Babich, A.M., Burdine, P., Albright, L., Randol, P.

Wichita Public Schools
Murdock Teacher Center

		MOST LIKE ME			LEAST LIKE ME
1.	When I make things for my studies, I remember what I have learned better.	4	3	2	1
2.	Written assignments are easy for me to do.	4	3	2	1
3.	I learn better if someone reads a book to me than if I read silently to myself.	4	3	2	1
4.	I learn best when I study alone.	4	3	2	1
5.	Having assignment directions written on the board makes them easier to understand.	4	3	2	1
6.	It's harder for me to do a written assignment than an oral one.	4	3	2	1
7.	When I do math problems in my head, I say the numbers to myself.	4	3	2	1
8.	If I need help in the subject, I will ask a classmate for help.	4	3	2	1
9.	I understand a math problem that is written down better than one I hear.	4	3	2	1
10.	I don't mind doing written assignments.	4	3	2	1
11.	I remember things I hear better than I read.	4	3	2	1
12.	I remember more of what I learn if I learn it when I am alone.	4	3	2	1
13.	I would rather read a story than listen to it read.	4	3	2	1
14.	I feel like I talk smarter than I write.	4	3	2	1
15.	If someone tells me three numbers to add I can usually get the right answer without writing them down.	4	3	2	1
16.	I like to work in a group because I learn from the others in my group.	4	3	2	1
17.	Written math problems are easier for me to do than oral ones.	4	3	2	1
18.	Writing a spelling word several times helps me remember it better.	4	3	2	1
19.	I find it easier to remember what I have heard than what I have read.	4	3	2	1
20.	It is more fun to learn with classmates at first, but it is hard to study with them.	4	3	2	1
21.	I like written directions better than spoken ones.	4	3	2	1
22.	If homework were oral, I would do it all.	4	3	2	1
23.	When I hear a phone number, I can remember it without writing it down.	4	3	2	1
24.	I get more work done when I work with someone.	4	3	2	1

		MOST LIKE ME			LEAST LIKE ME
25.	Seeing a number makes more sense to me than hearing a number.	4	3	2	1
26.	I like to do things like simple repairs or crafts with my hands.	4	3	2	1
27.	The things I write on paper sound better than when I say them.	4	3	2	1
28.	I study best when no one is around to talk or listen to.	4	3	2	1
29.	I would rather read things in a book than have the teacher tell me about them.	4	3	2	1
30.	Speaking is a better way than writing if you want someone to understand what you really mean.	4	3	2	1
31.	When I have a written math problem to do, I say it to myself to understand it better.	4	3	2	1
32.	I can learn more about a subject if I am with a small group of students.	4	3	2	1
33.	Seeing the price of something written down is easier for me to understand than having someone tell me the price.	4	3	2	1
34.	I like to make things with my hands.	4	3	2	1
35.	I like tests that call for sentence completion or written answers.	4	3	2	1
36.	I understand more from a class discussion, than from reading about a subject.	4	3	2	1
37.	I remember the spelling of a word better if I see it written down than if someone spells it out loud.	4	3	2	1
38.	Spelling and grammar rules make it hard for me to say what I want to in writing.	4	3	2	1
39.	It makes it easier when I say the numbers of a problem to myself as I work it out.	4	3	2	1
40.	I like to study with other people.	4	3	2	1
41.	When the teachers say a number, I really don't understand it until I see it written down.	4	3	2	1
42.	I understand what I have learned better when I am involved in making something for the subject.	4	3	2	1
43.	Sometimes I say dum things, but writing gives me time to correct myself.	4	3	2	1
44.	I do well on tests if they are about things I hear in class.	4	3	2	1
45.	I can't think as well when I work with someone else as when I work alone.	4	3	2	1

Figure Seven

C.I.T.E. LEARNING STYLES INSTRUMENT

SCORE SHEET

VISUAL LANGUAGE

5 --- ________
13 --- ________
21 --- ________
29 --- ________
37 --- ________
Total _____ x 2 = ________ (Score)

VISUAL NUMERICAL

9 --- ________
17 --- ________
25 --- ________
33 --- ________
41 --- ________
Total _____ x 2 = ________ (Score)

AUDITORY LANGUAGE

3 --- ________
11 --- ________
19 --- ________
36 --- ________
44 --- ________
Total _____ x 2 = ________ (Score)

AUDITORY NUMERICAL

7 --- ________
15 --- ________
23 --- ________
31 --- ________
39 --- ________
Total _____ x 2 = ________ (Score)

KINESTHETIC-TACTILE

1 --- ________
18 --- ________
26 --- ________
34 --- ________
42 --- ________
Total _____ x 2 = ________ (Score)

SOCIAL-INDIVIDUAL

4 --- ________
12 --- ________
20 --- ________
28 --- ________
45 --- ________
Total _____ x 2 = ________ (Score)

SOCIAL-GROUP

8 --- ________
16 --- ________
24 --- ________
32 --- ________
40 --- ________
Total _____ x 2 = ________ (Score)

EXPRESSIVENESS-ORAL

6 --- ________
14 --- ________
22 --- ________
30 --- ________
38 --- ________
Total _____ x 2 = ________ (Score)

EXPRESSIVENESS-WRITTEN

2 --- ________
10 --- ________
27 --- ________
35 --- ________
43 --- ________
Total _____ x 2 = ________ (Score)

Score: 33 - 40 = MAJOR LEARNING STYLE
20 - 32 = MINOR LEARNING STYLE
5 - 20 = NEGLIGIBLE USE

PART TWO

FORMAL VOCATIONAL ASSESSMENT

INTRODUCTION

What is formal vocational assessment?

Formal vocational assessment is a multi-dimensional approach to planning and implementation of an individual's career, vocational training, and subsequent employment. This process helps determine an individual's assets and skill deficits. Results of the assessment process include development of an aptitude profile and an interest profile. They also include a physical status summary, a description of the individual's behavior in various controlled settings, and a vocational skill profile (Abbas and Sitlington, 1976).

What is the purpose of formal vocational assessment?

Two major purposes of vocational assessment are:

1. To provide information for administrative decisions concerning
    - the selection or rejection of individuals for services
    - the classification of individuals in order to assign them appropriately to existing programs
2. To provide information needed to individualize the design, implementation, and evaluation of programs provided to each handicapped student.

Formal assessment must relate classification decisions to training decisions. Without such integration, assessment is useful only for administrative purposes, not training objectives.

To insure appropriate decision-making, initial assessment procedures should encompass different behavior domains, instructional formats, and difficulty levels. Specifically, formal vocational assessment should:

1. Help the student explore vocational areas and make career choices
2. Help the teacher determine the student's skills
3. Determine which learning approaches are best for the student
4. Determine how well the student can perform skills learned during assessment and under what conditions optimum performance occurs
5. Provide direction for programming, and offer precise recommendations concerning skills needing further development

Who Conducts Formal Vocational Assessment?

Formal vocational assessment should be conducted by a professionally-trained vocational evaluator. The evaluator should not administer specific assessment tools for which he or she is not trained. In such situations, a professional psychologist or psychometrician should be utilized.

Why Worry About Formal Vocational Assessment?

There are two strong reasons to consider the use of formal vocational assessment:

1. Some handicapped students learn best when particular teaching methods, materials, class management strategies and feedback strategies are used. The needs of a particular individual may be determined only through a formal testing process.
2. Legal mandates, such as Section 504 of the Rehabiliation Act of 1973, and Public Law 94-142, the Education of All Handicapped Children Act contain guidelines for the use of formal assessment.

For example, the "protection in evaluation procedures" section of Public Law 94-142 mandates nondiscriminatory assessment of handicapped students. The law requires State and local school personnel to insure that:

1. Testing and evaluation materials and procedures which are used to evaluate and place handicapped students will be selected and administered in ways which are not racially or culturally discriminatory.

2. Assessment procedures or materials will be provided and administered in the student's native language or mode of communication, unless it clearly is not feasible.
3. No single procedure shall be the sole criterion for determining an appropriate educational program for a student.

Section 504 also outlines certain safeguards in testing handicapped students. It states that educational institutions must insure that:

1. Tests and other evaluation materials have been validated for the specific purpose for which they are used and are to be administered by trained personnel.
2. Tests and other evaluation materials include those tailored to assess specific areas of educational need and not merely those which are designed to provide a single general intelligence quotient.
3. Tests are selected and administered so that, when a test is administered to a student with impaired sensory, manual, or speaking skills, the test results accurately reflect the student's aptitude or achievement level or whatever the test intends to measure, rather than the student's impaired sensory, manual, or speaking skills, unless the test intends to measure those skills.
4. When interpreting the evaluation data and making placement decisions, the school shall:
    - draw upon information from a variety of sources, including aptitude and achievement tests, teacher recommendations, physical condition, social or cultural background, and adaptive behavior
    - establish procedures to ensure that information obtained from all sources is documented and carefully considered
    - ensure that the placement decision is made by a group of persons--including persons knowledgeable about the student, the meaning of the evaluation data, and the placement options
    - ensure that the placement decision is made in conformity with...[other provisions of the law].
5. Schools...shall establish procedures... for periodic re-evaluation of students who have been provided special education and related services. A re-evaluation procedure consistent with the Education for the Handicapped Act is one means of meeting this requirement.

A VOCATIONAL ASSESSMENT MODEL

How is the Assessment Process Carried Out?

In most school systems, vocational assessment consists of three major components: work sampling, psychometric testing and critical observation of behavior. Supplemental components round out the process.

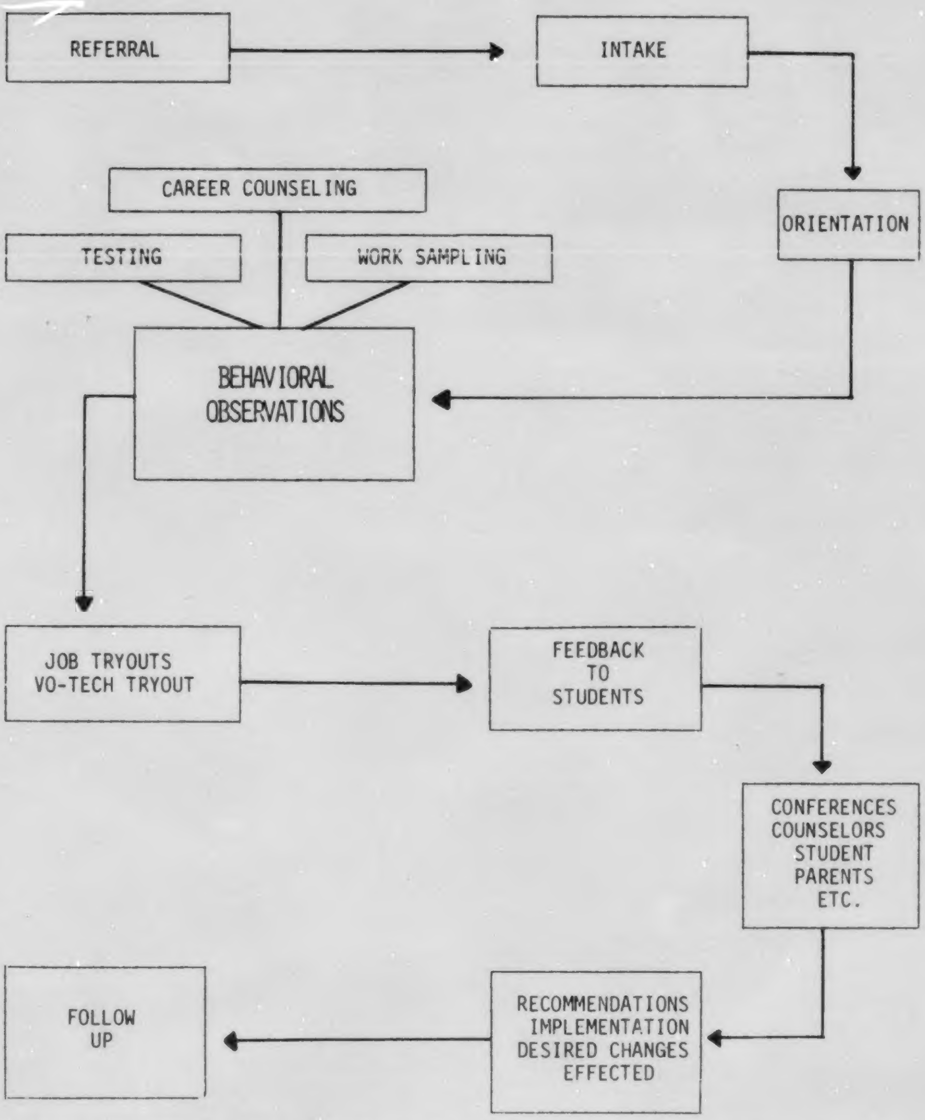
The flow chart shown in Figure Eight shows a typical vocational evaluation process (Maryland, 1977).

What Are the Other Components of the Model?

1. Referral information indicates program eligibility and aids in student selection for specialized training or services.
2. Student orientation is usually done by the guidance counselor and/or person referring the student. Often the evaluation staff interviews students prior to scheduling them for the program. In either case, the student should be provided with answers to the following questions (Moran, 1978):
    - "Why are you referring me for a formal evaluation?"
    - "What will I have to do?"
    - "Will I find out how I did?"
    - "What will happen after the testing?"
3. Biographical data include pertinent information such as the student's sex, age, grade, parents or guardians, reading and math grade levels, physical handicaps, and work experience.
4. Psychometric testing is the use of any standardized test used to measure the student's dexterity, aptitude, interests, academic achievement level, intelligence, or personality.
5. Work samples are derived from actual jobs. They utilize similar tools, equipment, and materials in a simulated work setting. These tasks often reflect jobs that are indigenous to the community.
6. A personal interview is often used for two purposes. During the initial stage of the assessment process, an interview should be conducted to explain the purpose and procedures of the assessment, establish

Figure Eight

FORMAL VOCATIONAL ASSESSMENT ACTIVITIES


REFERRAL
INTAKE
ORIENTATION
CAREER COUNSELING
TESTING
WORK SAMPLING
BEHAVIORAL OBSERVATIONS
JOB TRYOUTS
VO-TECH TRYOUT
FEEDBACK TO STUDENTS
CONFERENCES
COUNSELORS
STUDENT
PARENTS
ETC.
RECOMMENDATIONS
IMPLEMENTATION
DESIRED CHANGES
EFFECTED
FOLLOW UP

(Vocational Evaluation in Maryland Public Schools: A Model Guide for Student Assessment. Maryland State Dept. of Education, Division of Vocational/Technical Education, 1977.)

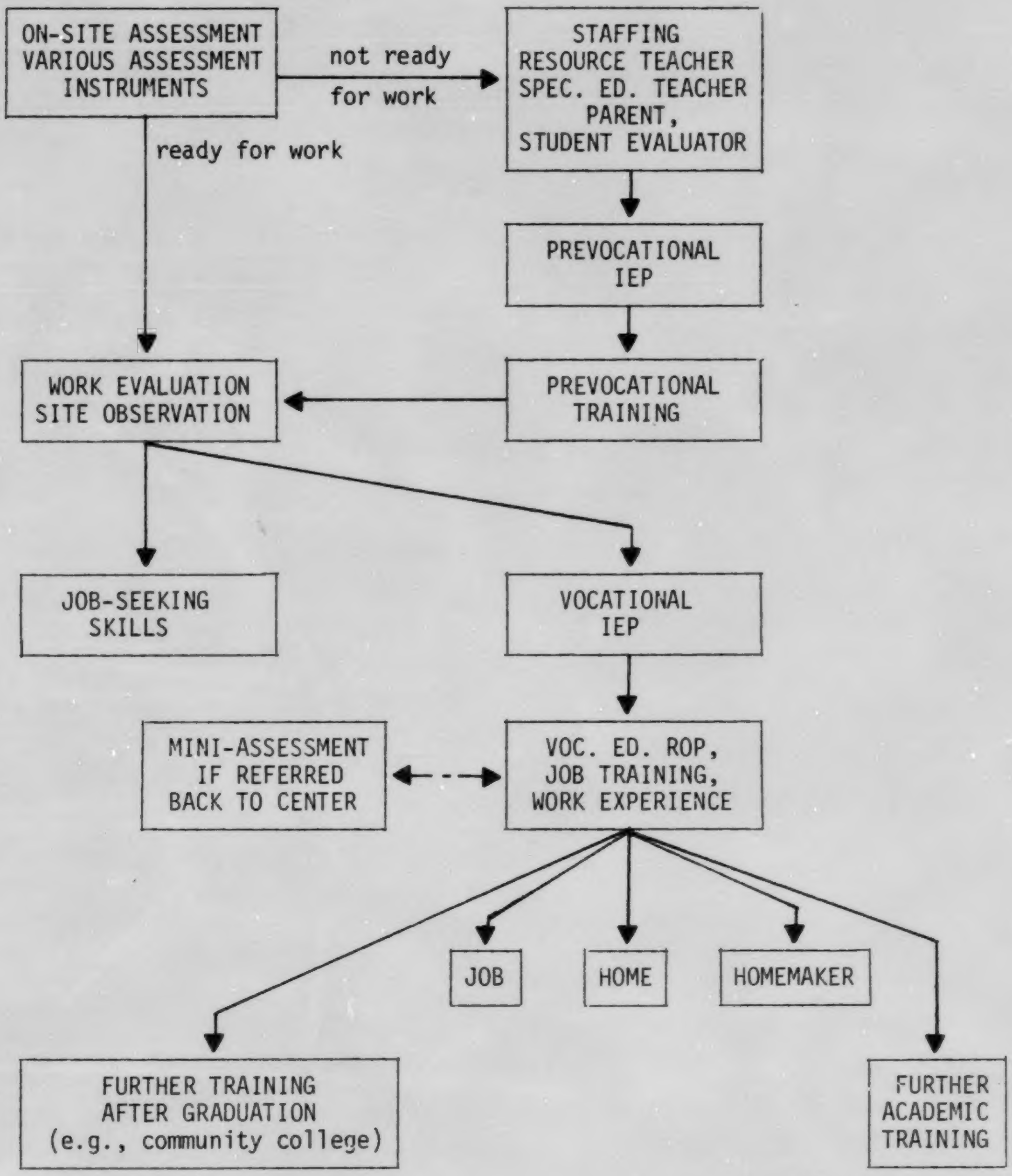
rapport, obtain data on the student's medical, social, and economic situation, and to determine the student's vocational awareness, preferences and tentative career goals. Another formal interview is often held on the last day of the student's evaluation. It provides an opportunity to review the student's personal goals, discuss vocational strengths and weaknesses, interpret evaluation results, discuss subsequent recommendations, and gain overall feedback.

7. Staffing conferences are held with persons directly concerned with the student to discuss the evaluation, interpret results and develop recommendations. A method and a time table of implementation are developed. Staffings could include the counselor, teachers, parents, student, and the vocational evaluator. For secondary level students,this conference should be a component of the student's individualized educational program (IEP).
8. A narrative report is the vehicle by which the student profile is developed, current skills and limitations are specified, and recommendations are made.
9. Critical observation occurs throughout the evaluation process. The student is observed for social and work behavior. These observations are recorded in descriptive terms. From this data, a behavior profile can be developed.
10. Normative data on the speed and accuracy of the student's performance is collected and compiled from work samples. Norms can be derived from past work sample performances by students or particular employee groups in industry.
11. Occupational information is provided as a natural follow-up to the discussion of a student's performance during the assessment.
12. Follow-up involves checking on the student periodically to discover if recommendations were implemented, if success was achieved, what effect the process had on the student, and whether the recommended programs were realistic.

A more recent flow chart (Figure Nine, Goldsmith, 1978) shows how vocational assessment is integrated into the handicapped student's individualized educational program (IEP) as mandated at the secondary level by P.L. 94-142.

Figure Nine

SUGGESTED FLOW CHART OF ASSESSMENT PROCESS


ON-SITE ASSESSMENT
VARIOUS ASSESSMENT
INSTRUMENTS
not ready
for work
STAFFING
RESOURCE TEACHER
SPEC. ED. TEACHER
PARENT,
STUDENT EVALUATOR
ready for work
PREVOCATIONAL
IEP
WORK EVALUATION
SITE OBSERVATION
PREVOCATIONAL
TRAINING
JOB-SEEKING
SKILLS
VOCATIONAL
IEP
MINI-ASSESSMENT
IF REFERRED
BACK TO CENTER
VOC. ED. ROP,
JOB TRAINING,
WORK EXPERIENCE
JOB
HOME
HOMEMAKER
FURTHER TRAINING
AFTER GRADUATION
(e.g., community college)
FURTHER
ACADEMIC
TRAINING

(Goldsmith, J.L., et. al. Five H: Formula for improving vocational education of the handicapped. Sacramento: California State Dept. of Education, California Community Colleges, and UCLA Extension, 1978.)

WORK SAMPLING

What is work sampling?

An effective work sample parallels a specific or general work environment in its cognitive and performance requirements, physical demands, decision-making requirements, work aids, tools, and equipment. This environment can be changed to meet the physical and mental needs and limitations of each individual involved (Thomas, 1979). The evaluator's assessment techniques are crucial to effective use of work samples. These techniques vary according to the needs of each individual and the outcomes desired. A basic function of work samples in almost any setting is to provide "hands-on" exposure to a work environment, and aid in career exploration. Individuals can make better decisions about what they could and would like to do when they have an opportunity to try out different fields. Therefore, the more closely a work sample resembles a job, or elements of a job, the easier it is for the individual to compare his or her abilities and interests to the demands of the job in question.

There are a wide variety of commercial work samples and work sample systems available. Prices and training requirements for their use vary greatly. The following is a list of commonly used, commercial work sample systems. Mention here does not imply endorsement nor does omission of any imply anything about its value.

1. Brodhead-Garrett Vocational Skills Assessment and Development System
2. Comprehensive Occupational Assessment and Training System (COATS)
3. Hester Evaluation System
4. Micro-TOWER
5. The Singer Vocational Evaluation System
6. Talent Assessment Program (TAP)
7. The Valpar Component Work Sample Series
8. Vocational Information and Evaluation Work Sample (VIEWS)
9. Wide Range Employment Sample Test (WREST)

These commercial systems vary widely in price, validity, reliability, and the degree of training needed to administer and interpret them.

Before using either commercial or self-made work samples, the following questions should be reviewed (Brolin, 1973):

1. Do the samples take into account
    - the possible expectancy to fail?
    - academic limitations?
    - verbal limitations?
    - limited experience?
2. Do the samples allow for more than one trial on each task?
3. Do the samples allow for repeated instruction and checks for comprehension?
4. Is there any evidence that the samples are valid (measure what they intend to measure) and reliable (measure it consistently and accurately)?
5. Do the samples allow for appropriate testing conditions (pleasant surroundings, orderly administration, consideration of fatigue)?

PSYCHOMETRIC TESTING

How Can Psychometric Testing Help?

Psychometric tests can be a valuable component of vocational assessment if they are carefully selected, administered properly, and interpreted correctly.

Selection involves matching the student's skills (e.g., mobility, reading level, math level) with the demands of the test, and checking the test's reliability and validity. All too often, this validity/reliability check is not done properly. For instance, most students who are retarded have very poor reading skills. Many students who are deaf have reading levels ranging from third to sixth grades, although individual deaf students may have much higher reading levels. Many standardized tests are not valid if used with either of these groups.

Proper interpretation should be provided by the professional giving the test, and summarized in the assessment report. Tests are samples of behavior that are supposed to predict what the student is likely to do in other situations. Though many tests require training to administer and interpret, they do not deserve the aura of mystery that sometimes surrounds them. Tests themselves have no mysterious power to uncover hidden secrets. They are simply tocls, can can be used skillfully or poorly just like any other tool.

The following list contains some vocationally-related psychometric tests. Inclusion in this list does not imply that a given test is the best one to use, nor does it imply that only these should be used.

1. Interest
    - AAMD-Becker Reading Free Vocational Interest Inventory
    - Brainard Occupational Preference Inventory
    - Geist Picture Interest Inventory
    - Geist Picture Interest Inventory (deaf form)
    - Kuder Preference Record (Vocational)
    - Minnesota Importance Questionnaire
    - Ohio Vocational Interest Survey
    - Reading Free Vocational Interest Inventory
    - Strong-Campbell Interest Inventory
    - Vocational Interest and Sophistication Assessment
2. Multi-Aptitude Batteries
    - Differential Aptitude Test
    - U.S. Employment Service General Aptitude Test Battery
    - U.S. Employment Service Nonreading Aptitude Test Battery
3. Manual Skill and Dexterity
    - Bennet Hand Tool Dexterity Test
    - Crawford Small Parts Dexterity Test
    - Minnesota Assembly Test
    - Minnesota Rate of Manipulation Test
    - Minnesota Spatial Relations Test

- Pennsylvania Bi-Manual Work Sample
- Purdue Pegboard
- Wells Concrete Directions Test

4. Mechanical Ability
    - Bennett Mechanical Comprehension Test
    - Revised Minnesota Paper Form Board Test
    - SRA Mechanical Aptitudes Test

5. Clerical Aptitude
    - Minnesota Clerical Test
    - SRA Typing Skills Test

When attempting to determine the vocational interests of special needs students, keep in mind that many will lack one or both fundamental ingredients of occupational selection:

1. Adequate occupational information
2. Decision-making skills

How Can Psychometric Tests Help?

Botterbusch (1978) describes several ways that psychometric tests can contribute to the vocational assessment process:

1. Planning the evaluation
    - The evaluator may use testing to determine the student's interests, aptitudes, and literacy skills. A multi-aptitude battery, together with a broad-based interest inventory may be used. The results must be discussed with the student and used to help plan the rest of the evaluation.

2. Determining possible causality
    - A student may do poorly on work samples in which the only common requirement may be the ability to visualize three-dimensional objects from diagrams and blueprints. The student may then be given a test of spatial ability to see of this accounts for the poor results. Other assessment techniques can also be used to substantiate tests. Tests or any other

technique are not the ultimate criteria. One must cross-check the results of several measures against each other to determine whether or not they are consistent. If they are inconsistent, it is important to determine the reason.

3. Deciding between alternatives

   - For example, a student may do well on work samples in both the clerical and sewing areas, and has verbally expressed an interest in both. Other results agree that both areas are within the student's ability. In helping the student decide between these two areas, compile and provide additional occupational information and discuss the local job market. At this point, tests can provide a more covert determination of interests and needs. These tests could provide useful information not otherwise attainable. All sources of information can then be weighed by the evaluator and student in order to make a decision.

4. Answering questions or hypotheses raised by the student's prior experience or evaluation results.

   - For example, a student may have a job history which shows that he or she had several clerical jobs for short durations. Clerical tests and work samples reveal no skill deficiencies. Behavioral observations show no overt problems, and he or she is unable to explain the poor employment history. The following hypotheses could be examined with tests: 1) the person has a personality or psychiatric problem that manifests itself only while on the job; 2) the person's intelligence may be extremely high, causing boredom and resulting in frequent job changes; and 3) the person may not really be interested in clerical work. The use of tests to answer these hypotheses would be discussed with the student. One hypothesis at a time would be investigated.

Thus, the evaluator could use testing to support or refute hypotheses which might explain problems that do not have an obvious cause.

BEHAVIOR OBSERVATION

What is Critical Observation of Behavior?

Behavior observation is the primary tool used in "situational assessment". Situational Assessment is the "systematic procedure for observing, recording, and interpreting work behavior. One of the underlying assumptions of observation is that behavior is determined both by the person and the situation. Any attempt to isolate one from the other, or neglect the context, results in loss of data and misinterpretation" (Pruitt, 1977, p. 167).

Observing students in the shop or on the job can provide a better idea of the student's vocational capabilities than reliance on tests or work samples alone. Skilled observation requires sensitive, objective, and experienced observers who have common sense. Several factors should be kept in mind when observing (Pruitt, 1977):

1. The more natural the situation the more likely the person's actions will reflect characteristic behavior.
2. Any observation reflects only present functioning, not what the person could do after proper training.
3. Physical factors may profoundly affect behavior.
4. Inconsistencies in behavior may be important.
5. Stereotypes can influence a rater's perceptions of observed behavior.

Behavioral observation can be structured more precisely by using formal rating instruments. For example, the MDC Behavior Identification Form (Materials Development Center, 1974) covers the following categories:

1. Hygiene, Grooming and Dress
2. Irritating Habits
3. Odd or Inappropriate Behaviors
4. Communication Skills as Related to Work Needs
5. Attendance
6. Punctuality
7. Ability to Cope With Work Problems (Frustration Tolerance)
8. Personal Complaints
9. Vitality on Work Energy

10. Stamina or Eight-Hour Work Capacity
11. Steadiness or Consistency of Work
12. Distractability
13. Conformity to Shop Rules and Safety Practices
14. Reactions to Change in Work Assignment
15. Reactions to Unpleasant or Monotonous Tasks
16. Social Skills in Relations with Co-workers
17. Amount of Supervision Required After Initial Instruction Period
18. Recognition/Acceptance of Supervisory Authority
19. Amount of Tension Aroused by Close Supervision
20. Requests for Assistance from Supervisor
21. Reactions to Criticism and Pressure from Supervisors
22. Work Method and Organization of Tools and Materials

The manual for the MDC Behavior Identification Form operationally defines each category and provides examples. Consider this definition for punctuality:

> Punctuality refers to promptness in reporting at prescribed times for work, evaluation, meetings, appointments, or after running errands.... It usually refers to reporting back for work at starting times in the morning, after lunch, and after break periods.

The examples provided to illustrate problems in punctuality include these:

- forgets to punch in
- begins work after others have started
- converses with co-workers five minutes before starting work
- habitually late in the morning
- spends too much time in the rest room
- late after lunch break
- last to return from break periods
- delays starting new work assignment
- always tardy for appointments with supervisory personnel
- does not accept time on clocks at work as being correct
- seeks attention by being tardy

Each category described examples the student behavior and rates them in terms of "acceptability" or "change needed". It indicates how this factor will affect the person's placement in a job.

> Vocational behavior checklists are not training programs.... Checklists aid in careful assessment of individual competencies. Checklists may serve as foundations for new training programs or aids in revising existing ones. They are behavior-description and curriculum-planning tools. Their potential usefulness will depend on an interaction of several factors: type of training program, student's initial vocational behavior repertoire, training setting, scope and objectivity of the checklist used, and the skill with which observers specify and record observations.
> (Walls and Werner, 1977)

Nonetheless, assessment that relies on the observation and recording of student performance in a work setting has several advantages over other approaches to work evaluation (Brolin, 1976):

1. It eliminates the typical testing situation, and accompanying anxiety, that standardized testing and work samples present.
2. The evaluator can assess many work behaviors that cannot be assessed with standardized vocational tests and work samples, such as interpersonal relationships, cooperation, response to work pressures, and response to orders from supervisors.
3. Such "situational" assessment is less expensive and less time consuming than work samples.
4. It provides an opportunity to view and evaluate the individual in a setting where typical behaviors are more likely to be seen.
5. It gives the individual an opportunity to be evaluated by several staff members in several work situations.
6. An individual can be evaluated under various conditions, including different types of supervisors, co-workers, and circumstances. These conditions can be varied systematically.

The situational assessment procedure also presents many disadvantages (Brolin, 1976):

1. It is highly dependent upon accurate interpretation of observed behavior and performance.
2. The measures used to evaluate observed behavior are generally more subject to variance among raters.
3. Much evaluation time is wasted if the student is not systematically evaluated frequently enough.

USE OF VOCATIONAL ASSESSMENT RESULTS

How Can the Results of the Vocational Assessment be Integrated into the Instructional Process?

The results of vocational assessment can be integrated by asking effective questions of the evaluator and by interpreting the results appropriately.

How are Referral Questions Formed?

Frequently, vocational evaluation reports are vague and general because the instructor requesting the evaluation asked vague and general questions.

Referral questions should focus on problems which can be observed. They should state the problem(s) precisely, and be supported by any relevant informal assessment and observational data that the teacher can supply.

Do the Results Make Sense?

In reviewing vocational assessment results, look for the following:

1. Math and reading levels
2. Comments about the student's persistence, attitude, and behavior
3. Descriptions of the student's preferred learning style, speed of learning, and accuracy (including what new skills the student learned and the conditions under which this learning occurred)
4. Physical capacities (endurance, strength, coordination) and limitations

5. Vocational interests, aptitudes and experiences
6. The answers to any specific questions asked in the referral

This information should be interpreted in the context of other information:

1. The student's feelings about entering a specific program
2. Jobs within a vocational area for which the student could train
3. Short term objectives the student could achieve

If assessment results do not seem to make sense, ask the evaluator or other knowledgeable person to provide a clarification.

How Can Vocational Assessment Results be Misinterpreted

Misinterpretation of a student's performance in vocational assessment can result from specific factors either in the student or the evaluator. Factors in the person assessed include:

1. Previous experience with assessment
2. Level of motivation to perform well
3. Degree of rapport with the tester
4. Test content which may favor individuals from specific backgrounds but are not related to the performance criteria
5. Emotional and attitudinal responses to the assessment process.

Factors in the evaluator or instructor center on interpretation of results and on decisions that are based on those interpretations. Observational assessments are especially vulnerable to such problems. Wentling and Lawson (1975) describe these factors:

1. The "halo effect" is a tendency to rate high on all categories because of:
    - past record -- Good work in the past tends to carry over (in one's mind) to the present.
    - compatibility -- Those one likes are rated higher.

- excellence in an important skill -- "If he can do that so well he must be good in other areas also
- timing--a good job yesterday is valued higher than a good job last week.

2. The error of severity is the tendency of ratings to be too low because of:
    - perfectionism--one's expectations may be too high
    - conflicts--an individual may disagree too often
    - lack of empathy--the student may be a maverick or a nonconformist
    - guilt by association--the student has something in common with a known poor performer
    - dramatic incidents--a recent goof can wipe out a year's good work.

3. The error of central tendency occurs when the evaluator views all the person's assessed qualities as mediocre or average, whether or not this accurately reflects the person's performance.

Additional factors which could improperly influence the interpretation and use of assessment results include these:

1. Stereotyping due to:
    - prior experience with the student's older siblings
    - the student's physical appearance or style of dress
    - the degree to which the student reflects the instructor's or evaluator's values or expresses antagonistic values.

2. Confusion of facts with inferences or judgments. "Facts" refers to quantifiable data or verifiable information. Inferences are conclusions, interpretations or generalizations made on the basis of data. Judgments are decisions about what should be done in the light of relevant data and inferences. For instance, "Joe should be placed in a self-contained class for retarded students," is a judgment. It might be based on the inference that Joe could not succeed in the regular class. This inference, in turn, could be based on data which indicate that his reading level is 5.0, his math level is 4.0 and his Wechsler Adult Intelligence Scale I.Q. score is 69. The math, reading, and IQ scores are

> examples of data which could be verified or disproved by re-testing. Bias can creep in when a professional mistakes his or her inference (e.g. "Charlie is unmotivated.") for factual data. The fact may be that Charlie didnot attempt to complete any of his assignments for a week. One cannot assume that the first inference which comes to mind is the only possible one, or even an accurate one.
>
> Judgments are even more prone to error because they are twice removed from the factual information upon which they are, or should be, based. The judgments of professional educators and evaluators have far-reaching consequences for students who are handicapped. Great care must be taken to insure that judgments such as, "Joe must be transferred from this program," or "Because Charlie is unmotivated and unproductive I can't teach him anything," are grounded in a number of tightly reasoned inferences which are, in turn, based on substantial amounts of valid and verifiable information.

Thus, although some assessment instruments might be invalid when used with handicapped students, the greatest sources of inappropriate assessment are the person doing the assessment and the person(s) who make educational decisions based on the assessment results.

Does Vocational Assessment Make Any Difference?

By answering the following questions, the effectiveness of the assessment program as a whole can be determined with greater clarity:

1. Do the assessment results make any difference in determining vocational placement? For example, if all retarded students completed a battery of vocational interest tests, aptitude tests, and work samples, and were placed in food service, janitorial, or laundry programs, the value and goals of the assessments should be questioned.

2. Does the evaluator take into consideration the distinction between learning a skill and performing it once it has been learned? Many commercial vocational assessment systems do not make this distinction. If it is not considered, the assessment results may be misleading or useless. If this distinction is considered, does the assessment include systematic training procedures and techniques to measure their effectiveness?

Vocational evaluation must look at both the acquisition of skills and the use of these skills. If work sample evaluations examined not only how well and how fast a person performed but also the length of time and training conditions necessary to learn new tasks, the resulting information would be more helpful to all staff who design and implement training programs for handicapped students.

SUMMARY

Vocational assessment is a process in which a handicapped student gains insight into his or her interests, abilities, and preferred work environments.

"While formal vocational assessment is a time-limited and concentrated process, assessment is inherently continuous" (Szoke and Vest, 1975). The handicapped student's abilities and interests should be re-evaluated frequently as he or she progresses through the stages of vocational preparation. Such on-going assessment should include (Szoke and Vest, 1975):

1. Evaluation of a student's abilities and interests in a variety of prevocational laboratory and vocational skill courses. Exploratory mini-courses are especially helpful because they enable a student to experience a number of occupations before enrolling in a specific vocational program. Grades, performance sheets, anecdotal records and instructor recommendations should be considered also.

2. Evaluation of a student's vocational skills, interests, and work behaviors at both on-campus and community work stations. Performance sheets, anecdotal records, observations and recommendations from the work experience coordinator and job supervisor should be included.

Evaluation is not an end in itself, nor should it be separated from training. Although student selection and classification decisions are often based on vocational evaluation results, the main goal of evaluation should be to determine the student's needs, desires, skills, and skill deficits so that appropriate vocational training and services can be provided.

Vocational assessment encompasses a variety of formal and informal evaluation procedures, including paper and pencil tests, manipulative instruments, work samples, situational assessment in exploratory courses, labs or regular vocational courses, and work experience situations (Szoke and Vest, 1975).

The student should be actively involved in the evaluation process. Like vocational counseling, which is itself an important component of the total assessment process, assessment should be done with, not to the student. While parents and school staff should assist the student in making a realistic career choice, this is ultimately a decision the student alone must make.

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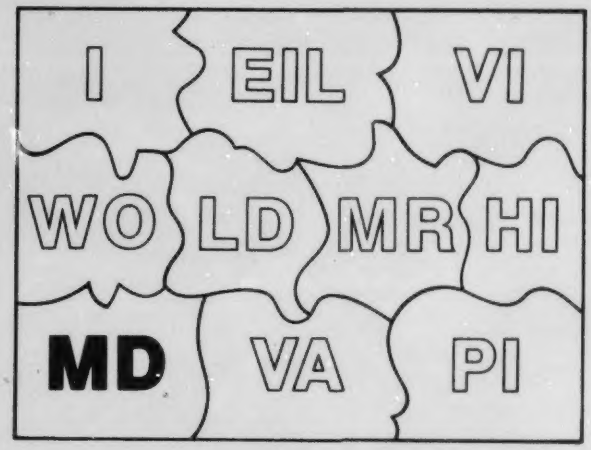
CHAPTER X



Models of Service Delivery

Jo Ann Salin

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CHAPTER FIGURES

Figure One: General Strategy

Figure Two: Modification Process Model for the Vocational Education of Handicapped Students

INTRODUCTION

An increasing emphasis on the right of all handicapped individuals to an equal education has led to an expansion of services available to students with special needs. Providing handicapped students with appropriate services enables the student to experience success in school, develop a positive, productive self-image, and gain a saleable skill.

The degree of services to be offered will vary. Some students may require few or no classroom adjustments. Others may require a broad range of specialized guidance, counseling, instructional and support services.

Programs which serve the needs of handicapped students in vocational education programs are numerous. Services provided by the school come from the classroom teacher, the special education teacher, instructional aides, school counselors, and job placement specialists. Among the community agencies which offer ancillary services to students and their families are the social service department, the welfare department and private rehabilitation agencies. The handicapped students may need services from specialists in the medical and health fields. Such specialists could include speech therapists, occupational therapists, mobility specialists, psychologists, social workers and hearing clinicians.

Local vocational rehabilitation agencies provide services which are related to vocational goals. Services may include:

1. Vocational evaluation to assess the individual's work capacity
2. Vocational exploration counseling and referral services to develop good vocational adjustment
3. Medical and health-related services related to the disability
4. Artificial limbs, prosthesis, etc., to increase physical capacity
5. Training in vocational, pre-vocational, and remedial education, as well as personal adjustment
6. Interpreters for the deaf
7. Readers for the blind
8. Work adjustment.
9. Job placement
10. Job seeking skills
11. Post-placement follow up

The services which are provided to a handicapped student are based on the totality of the student's needs. These needs may be served by:

1. Private counseling services which will have an impact on family and personal relationships as well as academic achievement, career choice and work adjustment
2. Instructional support services which help improve the student's achievement in academic and vocational classes and laboratories
3. Psychometric and situational assessments which are useful in planning academic and career goals; appropriate academic and career choices may help avoid unnecessary frustration
4. Medical and health related services which can improve the student's capacities, thereby increasing the efficacy of the other services

These services can be invalable to the handicapped student. It is important, however, that one individual have responsibility for planning and coordinating services. Without a coordinator, services may be conflicting and/or duplicated. Benefits could be lost. A coordinator could insure that services provided to a handicapped student are individualized, appropriate and comprehensive.

To initiate a system of service delivery to the handicapped, it is advisable to begin by:

1. Establishing a definite philosophy of education of the handicapped; this will serve as a guideline for making policies
2. Surveying local resources, to identify health, social and vocational rehabilitation agencies; physicians, psychologists, counselors, and nurses are individuals who also need to be identified as resources
3. Determining the availability of special transportation and special equipment is also important; resources for modifying the physical plant need to be located.
4. Determining the availability of special instructional materials; this includes teacher aides, equipment, and curriculum syllabuses
5. Determining the availability of highly-trained personnel who are experienced in the care and education of the handicapped

It is essential to evaluate these special programs and services at periodic intervals. The effectiveness of programs can be measured by the degree to which the handicapped person develops self-sufficiency in society.

The success of the service delivery system in a postsecondary setting is directly related to the commitment and attitude of the institution towards the program of the handicapped student. Support and involvement from administrative officials at all levels is needed to develop effective services.

The preceding discussion has examined the broad range of services available to handicapped students as well as various aspects of service delivery. The rest of this chapter will look at examples of programs that deliver services to handicapped students successfully. These examples were selected to illustrate a variety of programs with unique orientations.

1. Model one proposes that successful mainstreaming of exceptional students results from effective administrative and supervisory practices.
2. Model two presents a vocational education program for educable mentally retarded and trainable mentally retarded students. The model includes a cooperative work experience program.
3. Model three offers a resource facility (Learning Center) and resource personnel to provide appropriate educational programs and experiences to special needs students.
4. Model four focuses on individualized programs for all special needs students. Each program is developed from a prescribed plan.
5. Model five is a program which serves handicapped youth who have dropped out of school.
6. Model six integrates special needs services, vocational education, and vocational rehabilitation into a well coordinated program of support services.
7. Model seven exemplifies the high quality of services which can be provided when formal interagency service agreements are established at the highest levels of government.
8. Model eight focuses on career exploration and skill development.
9. Model nine describes the process of modifying vocational education for handicapped students.

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Other models of service delivery are listed at the end of the chapter.

MODEL 1 - EFFECTIVE MAINSTREAMING

The first model is based on a study conducted by Randolph B. Tarrier of the Institute of Research and Development in Occupational Education, City University of New York. Tarrier examines several successful mainstreamed occupational education programs in New York State. The results of the study revealed that certain administrative and supervisory practices contribute to the effectiveness and success of mainstreaming. It appears that a key element in exemplary administrative practices is a clear concept of mainstreaming.

Mainstreaming exposes handicapped students to the same occupational learning experiences as nonhandicapped, within the same instructional setting. However, this does not mean that all exceptional children are to be placed in regular classes. The intent is to integrate these students at a level compatible with the student's abilities. The level of integration may consist of any of the following:

1. Attendance in regular classes with or without supportive services
2. Attendance in regular class plus supplementary instructional services
3. Part time special classes; an example would be a multi occupational course that offers an introduction to many occupations
4. Full-time special class, like prevocational training
5. Special schools such as a school for the deaf

Whatever level of mainstreaming is achieved, the success of the program is directly related to administrative practices.

From his study, Tarrier identified six administrative practices which contribute significantly to effective occupational education of the handicapped. The practices, arranged in order of their importance, are:

1. Organization and structure of program
2. Professional training activities
3. Personnel
4. Design of mainstreaming program
5. Support services
6. Community and state relations

An outline of administrative practices (Tarrier, 1978) follows. These practices are listed in order of importance and include additional information relevant to each practice.

Organization and Structure of Program

1. Close working relationship and close physical proximity between occupational education and special education
    - This was particularly evident in the BOCES sites in which the two departments were located side by side and meetings (both formal and informal) were ongoing.
2. Special staff member to coordinate occupational education, special education, and home schools
    - Unless efforts are made to coordinate selection of students, curricular changes, transportation of students, etc., confusion usually results.
3. Continuing (constant) communication (informal and formal) among mainstreaming program staff as well as between components which contribute to its functioning
    - The internal communication system among staff members for the well functioning programs is of equal importance to the administrative systems for communication. Changes in scheduling, timetables, etc., often need "instant" decisions.
4. Acceptance of need for flexibility in all aspects of program by board and administrators (including scheduling, bussing, etc.)
    - Allowance must be made for modification of set rules and operating procedures. Procedures must be subordinated to the needs of these students.
5. Existence of General Advisory Council (employers, personnel/agency people)
    - Schools staffs were well informed of philosophy and action in mainstreaming plan. This was accompanied by involving many different segments of the school.

Professional Training Activities

1. Opportunities for informational meetings (between occupational education and special education) (physical proximity of programs enhances such opportunities)
    - A smooth working blend of the two staffs made for easy changes in rules and regulations and much greater understanding of each other's needs.

2. Inservice training courses for staff teaching deaf and hard of hearing
    - Training in sign language was sought and valued by teaching staff.

3. Summer workshops for occupational education teachers
    - Many of the teachers have had little training and experience with special populations. The benefits of workshops are immediate and extensive.

4. Inservice training for teacher aides in remediation and diagnosis of learning disabilities
    - In order to develop individual education plans (IEP), the two areas of training are essential.

5. Stipends and/or credits for participation in professional training activities
    - The need for continued growth of faculty is well understood in the effective programs.

6. Attendance at city and state conferences
    - In our sample, this participation was usually encouraged and funded.

7. Employment of professional evaluators for staff (Professional Improvement Plan)
    - Evaluation was seen as providing directions of change and improvement.

8. Regularly scheduled staff meetings attended by teacher, teacher aids, support staff, coordinator to discuss individualization for students
    - The recognition of team approach to educating this population was obvious.

9. Use of special education staff as consultants in occupational education
    - Special education staff can provide suggestions and ideas for new approaches to occupational education curricula.

Personnel

1. Recognition of need for expanded staff
    - Coordinator
    - Teacher aides
    - Support Services

      (Administrators must recognize and be willing to support the expansion of staff. The program will not function properly without additional support.)
2. Emphathy recongized as key selection variable in recruitment
    - Selection of staff is central to the success of the program. Empathy is of course important to all teachers, but especially so in mainstreaming.
3. Willingness to seek support and input from counseling staff
    - The pupil personnel staff is viewed as competent and helpful.
4. Provision for physician, nurse, psychologist to be on call
    - Administrators acknowledge the importance of medical support itself.

Design of Mainstreaming Program

1. Need to introduce the mainstreaming concept in elementary school through special education
    - The philosophy of the program is system wide.
2. Clarity of definition of mainstreaming (focus, selection of students)
    - The administrator's clarity of purpose and goals is directly related to the success of the program.
3. Provision for prevocational training in special education
    - Transition from special education to occupational education is an important consideration.

4. Commitment to total individualization

    - Each student is accorded the least restrictive learning environment.

5. Provision for continuing diagnosis throughout program

    - The programs are flexible enough so that a change in diagnosis is followed as a matter of course by a change in program.

6. Attention to skill development (occupational education) and social/emotional development (special education)

    - It is recognized that the occupational classroom be the means for socialization goals as well as skills development.

7. Practice of team teaching (teams consisting of one teacher from occupational education, one from special education)

    - The course of study is a shared responsibility.

8. Provision for multi-occupational or exploratory course

    - Transition from the environment of special education to occupational education is a key element to long term success of a program. The sink or swim approach is suspect.

9. Provision for feedback to home school

    - Especially in the BOCES, communication back to the person selecting the students is essential.

10. Special employability lessons (Attitude Improvement) for students with special needs

    - Attention is given to the attitudes toward work as well as skill development.

11. Provision for ongoing evaluations through specially designed competency modules

    - The emphasis is on mastery of skills as opposed to completion of specific time periods.

12. Realistic placements in terms of strengths and weaknesses

    - Job placement is conducted within a development model. Successful moves up the career ladder are emphasized.

13. Availability of career assessments

    - Career counseling is designed and delivered.

14. Plans for introduction of new courses
    - At most sites, the total program of mainstreaming is viewed in a developmental manner.

Support Services

1. Participation in selection process and in ongoing evaluation of students
    - The pupil personnel staff is known as competent and helpful.
2. Cooperative working arrangements with special education and occupational education teachers involved in multi-occupational experiences
    - Transition for students is enhanced by sharing teachers.
3. Expansion of counseling to include: special needs, work experience, and liaison between special education and home schools
    - Support services must expand to meet greater needs.
4. Participation in developing individual programs for students with particular attention to attitudes
    - Affective or emotional development is equally important to skill development.

Community and State Relations

1. Recognition of and cooperation with Committee for the Handicapped
    - Parent support for school's philosophy is a factor in successful programs.
2. Expanded use of social service agencies
    - Special agencies are available to students and graduates with special needs.
3. Establishment of community contact through adult education programs in occupational education
    - Community support for school's philosophy is a factor in successful programs.

4. Staff involvement with local groups (PTA, Library Committee, etc.)
    - Good relations with the local group can provide easier acceptance of graduates into society and the work force.
5. Increased contact with Vocational Rehabilitation and State employment agency
    - More employment opportunities indicate the importance of establishing the final goal as employability.
6. Recognition of need to supply community with information on regular basis
    - Community support of program including the employment of graduates is vital.

MODEL TWO - VOCATIONAL EDUCATION FOR MENTALLY RETARDED STUDENTS

A vocational education program for mentally retarded students has been designed by R. Yoshimura, and W. Suzuki (1978). Figure 1 graphically depicts this model which consists of seven sections. A detailed, step by step manual of procedures for implementing their program is available through the Oregon Department of Education. The following is a brief summary of this model.

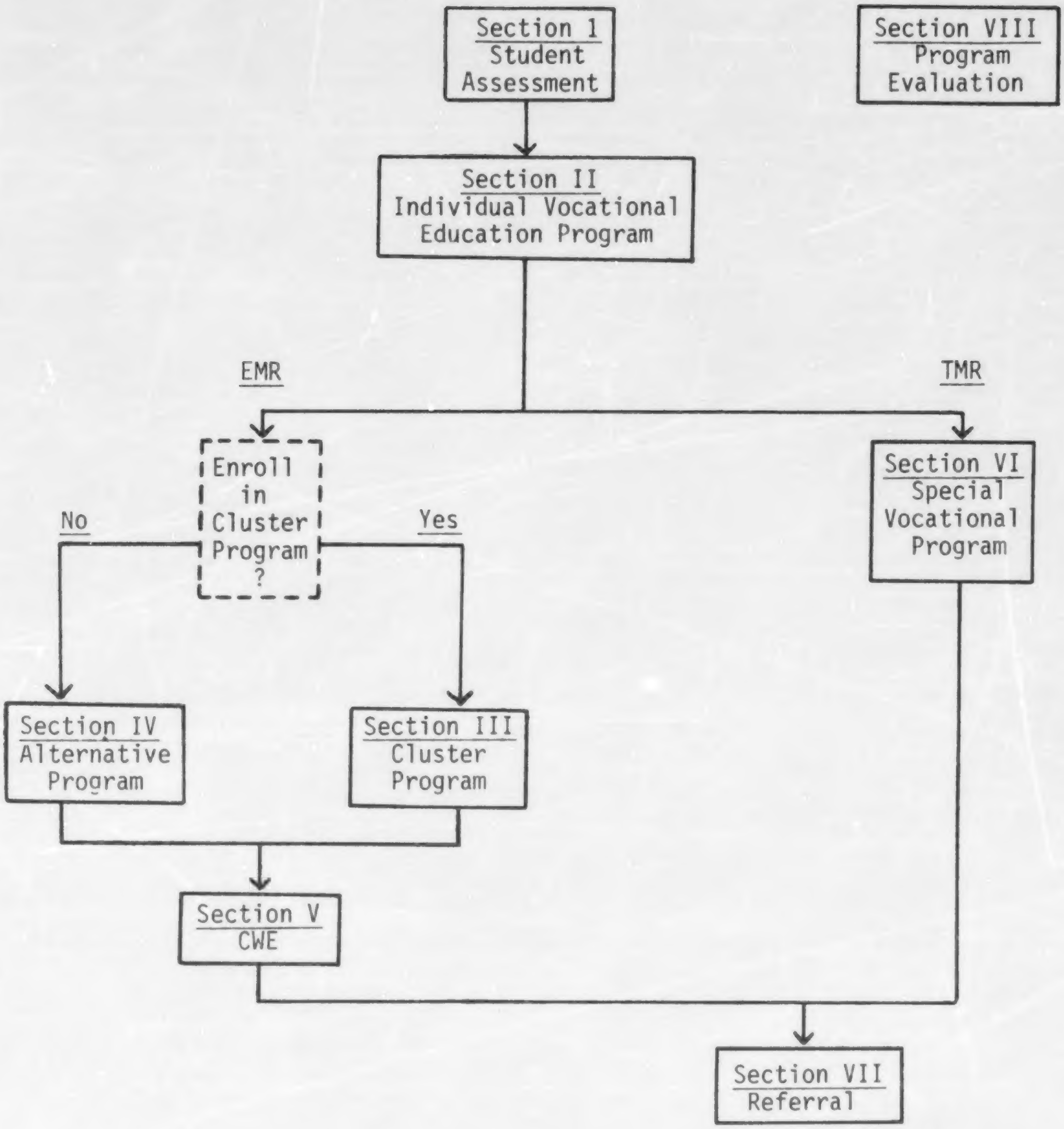
Conducting Vocational Assessments of Mentally Handicapped Students (Section One)

In order to enable handicapped students to acquire necessary employment skills, knowledge, and values, it is important to identify their strengths, weaknesses and interests. By doing this, the student can determine the most desirable occupation. Five basic areas are recommended for evaluation:

1. Numerical skills
2. Communication skills
3. Psychomotor/physical skills
4. Social skills
5. Occupational interest and aptitude

Figure 1

General Strategy


Section 1
Student Assessment
Section VIII
Program Evaluation
Section II
Individual Vocational Education Program
EMR
TMR
Enroll in Cluster Program ?
No
Yes
Section VI
Special Vocational Program
Section IV
Alternative Program
Section III
Cluster Program
Section V
CWE
Section VII
Referral

It is valuable to have a special needs coordinator assume responsibility for conducting the evaluation. Information should be collected from both tests and interviews. Once the information has been collected, it can be organized and documented in order to develop an individual program of study.

Developing an Individual Vocational Education Plan for Each Handicapped Student (Section Two)

The skills, knowledge, and values necessary to become employable should be specified in an Individual Vocational Education Plan. With identification of necessary learning objectives, a plan of action can be developed.

Enrolling Mentally Handicapped Students in the Regular Vocational Cluster Program (Section Three)

Many mentally handicapped students will be able to complete a regular vocational cluster program, provided some modifications are made. Modifications may include adding another occupation to the existing cluster, allowing more time on particular tasks, using instructional aides, and peer teachers. Usually it is recommended that no more than one mentally handicapped student be enrolled in a single class period.

Alternative Approach for Providing Basic Occupational Skills and Work Values (Section Four)

For some mentally retarded students, the most appropriate occupation may not be included in the regular vocational cluster program. An alternative should then be available so that these students can acquire job entry skills before participating in a cooperative work experience.

In-school work stations, such as the cafeteria, library, school store, etc. provide an alternative approach. The in-school work station experience enables a student to learn specific manipulative skills and such work habits as getting along with coworkers and supervisors, being properly dressed for work, being punctual, and completing assigned tasks.

Cooperative Work Experience (C.W.E) for Mentally Retarded Students (Section Five)

Through a cooperative arrangement between the school and an employer, the student combines on the job work experience with academic, social, and related vocational instruction in the classroom. This allows the student to develop employment skills on the job.

Vocational Education for Trainable Mentally Handicapped Students (Section Six)

Sections three and four describe vocational education programs for mentally retarded students who are educable. This section presents vocational education programs designed specifically for those mentally retarded students who are trainable. The structure of this program consists of three consecutive levels.

Level 1 provides classroom instruction in manipulation skills. Level 2 adds in-school work experience, described in Section four, to classroom instruction. Level 3 offers a work experience off campus, along with continued classroom instruction. The classroom instruction focuses on work related skills such as following instructions, getting along with coworkers and supervisors, verbal and written communication, telling time, etc. The student must show proficiency on one level before advancing to the next level.

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Job Placement and Referral (Section Seven)

Ideally, the mentally handicapped student becomes a permanent employee at the place of his or her cooperative work experience. Some students may need to seek employment in another location. The Division of Vocational Rehabilitation can assist these students in finding permanent employment.

Conducting Program Evaluations (Section Eight)

In order to provide a high quality of vocational education, programs must be evaluated regularly, so that necessary revisions and updates can be made. The evaluation should identify aspects of the program that need to be improved.

The effectiveness of vocational education is reflected in the success of the mentally handicapped student. The three following questions can be used as criteria:

1. Are mentally handicapped students employed in occupations for which they were prepared?
2. Are mentally handicapped students who are employed in occupations for which they were prepared performing satisfactorily on the job?
3. Are mentally handicapped students able to maintain their employment? (Yoshimura and Suzuki, 1978)

Materials Listed in the Appendix

The authors provide sample materials in the manual's appendix. These are useful in implementing the program and include:

1. Student Vocational Profile
2. Notice of Intent to Conduct an Evaluation
3. Numerical Skill Worksheets
4. Communications Skills Worksheet
5. Interview Schedule
6. Training Plan
7. Cooperative Work Experience Training Agreement
8. Employer Evaluation
9. Job Analysis
10. Student Data Form
11. Follow up of Former Students
12. Suggested Information Displays for Program Evaluation

MODEL THREE - INDIVIDUALIZED RESOURCE PROGRAM

An existing program, entitled the Individualized Resource Program, provides assistance to staff and to handicapped students who are maintained in the high school mainstream. This program was initiated in the mid 1960's, when Forest View High School in Mount Prospect, Illinois, began offering both vocational programs and special programs for handicapped students. Over the years, these programs have been revised and expanded. The program which has evolved utilizes a team approach. Its goal is to provide appropriate educational experiences for special needs students. The philosophy of the program is:

> The Individualized Resource (I.R.) program provides resource personnel and a resource facility (Learning Center) for the purpose of providing an appropriate educational program for students who have culty interacting with the traditional educational system. I.R. services are based on the concept of "the least restrictive alternative" aimed at mainstreaming students in regular classes with their peers. Thus, services are geared to individual student change and equally to faculty and other system adaptations which will maximize the learning experience of all students.

Anderson, Kusek and Stevens (1977) describe the program in the manual, Mainstreaming Special Education. A brief outline excerpted from the manual follows:

Staff of the Individualized Resource Program

1. I.R. Coordinator
2. I.R. Teacher
3. Learning Disabilities Teacher
4. I.R. Social Worker
5. School Psychologist
6. Outreach Counselor
7. Instructional Assistants

Goals for the Individualized Resource Program

1. Improvement of academic skills (math, reading, etc.)
2. Improvement of study skills

  - completion of assignments
  - working independently
  - class participation

3. Improvement of vocational skills
   - job selection
   - application procedures
   - personal and personnel habits

4. Improve social/adaptive skills
   - attendance
   - cooperation with staff, peers, and family
   - general classroom interactions

5. Improve systems as they affect student interaction
   - school
   - family
   - peer

Objectives of the Diagnostic Process

1. To define the problem(s) relative to a student's lack of success within the educational process
2. To determine eligibility of service(s)
3. To formulate a prescriptive program for the delivery of services

Objectives of the Team

1. To coordinate all the services delivered to students identified as "educationally disadvantaged and/or handicapped"
2. To facilitate communication among those staff members responsible for the delivery of various types of services to the same of different students
3. To prevent the duplication of services to the same student
4. To assure the development of comprehensive prescriptive programs for a given student which focuses on common goals

5. To prevent the delivery of conflicting services to the same student
6. To provide a forum for the expression of ideas, techniques, and impressions leading to the formulation of a program for a given student(s)
7. To provide a vehicle for the creative expression and involvement of all interested staff culminating in a variety of experimental approaches to student situations
8. To act as a catalyst in the development of the educational environment for all students

Individual Resource Program Services for Students

General objective: to deliver all those services to the I.R. student (directly and/or indirectly) which will enable the student to achieve or maintain success within his or her environment.

1. Monitor
    - To gather information relative to classroom performance in order to identify student situations which warrant further I.R. assessment
2. In-class Tutorial Assistance
    - To provide assistance to students in classrooms in order to maximize learning
3. Episodic Tutorial Assistance
    - To provide occasional assistance to students outside a classroom in order to increase in-class performance
4. Ongoing Tutorial
    - To provide regular and structured contact with a student outside the classroom in order to improve in-class performance
5. Learning Disabilities (Skill Remediation)
    - To provide assistance to students in the remediation of basic skill deficits in order to allow a student to participate successfully in his or her regular classes

6. W.E.C.E.P.

   - To provide a vocational training program for students who are potential dropouts in order to increase the probability of graduation as well as to directly improve vocational skills

7. Vocational Training

   - To insure a successful individualized vocational learning experience for identified students

8. I.R. Independent Study

   - To provide an instructional situation for students who, due to a skill problem, are totally unable to achieve in a regular class even with the assistance of other I.R. services

9. Parent Behavioral Management Group

   - To provide an instructional service to parents which will enable more positive, constructive interactions between them and their children

10. Counseling

    - To provide opportunities for one-to-one or group contact with students focusing on assessment and change from maladaptive behavior patterns to constructive, rewarding, adaptive behavior patterns:

      (To provide relationships with student(s) directed at assessment of current behavior patterns and consequences in order to involve the student in changing personal behavior patterns resulting in constructive achievement of personal goals and aspirations)

      (To provide interventions aimed at improving family interaction patterns ultimately enabling a student to achieve and/or maintain success within his or her environment)

11. Administrative Contact on Behalf of Students

    - To provide contacts with school administrators aimed at consistent, constructive appraisal and improvement in programming for individual students enabling them to function productively, academically, and socially within the school environment

Individual Resource Program Services for the System

General objective: to provide services to the various systems which affect student functioning in order to improve the learning environment of both the I.R. and the general student population.

1. Instructional Services to Staff/Individual or Staff Development
    - To facilitate any necessary improvements in teaching/learning interactions
2. Instructional Services to Administration
    - To assist the administration in the assessment and implementation of any necessary improvements in the general educational environment
3. Instructional Services to Staff/Home Visits
    - To provide a common framework for all staff in their contacts with families
4. Services With Outside Contacts
    - To provide for the dissemination and/or exchange of functional programs with other interested institutions, agencies, businesses, or persons.

MODEL FOUR - INDIVIDUALIZED PRESCRIPTIVE EDUCATION

Another model, Individual Prescriptive Education (I.P.E.) has been developed by Pat Rocco (1978). This program is not to be confused with the Individual Education Plan (I.E.P.). The Rocco model, which is a step-by-step process for developing individual school programs for handicapped students, emphasizes:

1. Dealing positively with vocational students who are different
2. Being flexible and allowing a variety of ways to deal with individual differences
3. Restructuring the subject matter so that it will be more meaningful to the learner.

The I.P.E. model can be easily explained by categorizing it into four main parts:

1. Identification
2. Assessment
3. Plan
4. Appraisal

Identification

This phase involves identifying all the factors that have an influence on the student. These factors are:

1. The environment
    - The social, economic, genetic and cultural elements of a student's life affect his or her ability and performance in the classroom. They can also create attitudinal barriers to learning.
2. The educational agency
    - The philosophy and practices of the educational agency will have a strong impact on all students. The various departments in an agency determine utilization of federal and state funds, teacher training, class size and staff development.
3. The student's handicap
    - Mental, physical or emotional impairments as well as academic, cultural, or economic disadvantages hinder the student from gaining an employable skill through a regular vocational program.
4. The vocational education
    - As initiator of the I.P.E., the educator can remove barriers, and provide programs that meet the needs of the individual student.

Assessment

In this phase, a thorough assessment of the student's past performance, current functional level and his or her needs is made. A diagnostic team, including an administrator, a counselor, a psychologist, a nurse, an advocate, teachers, parents, and personnel from related agencies can collect the information needed for a complete assessment. The necessary data can be obtained from school records, health records, test scores (aptitude, achievement, interest and intelligence) and a survey of the student's personal and family background.

Using the information gathered, the diagnostic team can determine the student's problems relevant to learning deficiencies. The problems may encompass any of the following:

1. Mental/physical impairments
2. Social/economic problems
3. Limited skills
4. Home/family deprivation
5. Poor educational background
6. Poor school attendance
7. Lack of motivation

MD

At this point, a summarization of team findings is important. Sharing this summarization with the student (including both strengths and weaknesses) provides an opportunity for the student to become actively involved in the planning and implementation of his or her own educational program. This involvement creates greater interest, enthusiasm, and commitment in the student.

Results of the assessment are then used to prescribe a vocational education plan for the student.

Plan

This phase consists of formulating objectives, making modifications and implementing the plans. The objectives should include specific skills, as well as particular job skills, personal skills or computational skills. Broader objectives may include expectations for the student's level of performance.

Modifying programs to meet the needs of the individual student is the essence of the I.P.E. Modifications may involve changes to the curriculum or method of instruction. In some instances, the instructor will need to restructure the learning situation. Construction of special learning aids may also be necessary. If the instructor needs to adapt the unit of instruction to the student's needs and abilities, the following suggestions would be helpful.

1. Goal stated in objective terms
2. Program designed at student's level of functioning
3. Student begins with unit in the sequence to which he can respond correctly about 80 percent of the time
4. Modification of the tasks to accomodate the student
5. Design at the student's level of functioning with small, graduated, sequential steps involved in learning
6. Learning ability used to support and aid the student
7. Program directed at clearly defined educational goals
8. Reinforcement to strengthen successive tasks (Rocco, 1980).

Along with the instructor's adaptations, the educational agency has a responsibility for various modifications. These include:

1. Modifying facilities
2. Offering administrative support
3. Providing tutorial instruction
4. Modifying schedules

The student also has a special responsibility to the program. He or she is expected to:

1. Recognize the worth of the I.P.E.
2. Participate in school
3. Accept the instructors
4. Attend classes
5. Recognize self worth
6. Achieve success
7. Complete the program

MD

To help make the program as effective as possible, the instructor needs to observe the student carefully, be alert to changes, be flexible and perhaps modify the way he or she relates to the student. It is also important to increase parent involvement and use other agencies for support services.

Appraisal

An evaluation of the I.P.E. Program will help determine its significance. After the assessment phase, the I.P.E. can be accepted, rejected or modified as needed. Appraisal should be a continuous process, not a final step. Thus, adjustments can be made on an ongoing basis. Including the student in the appraisal process promotes student success.

MODEL FIVE - OUT OF SCHOOL YOUTH

Another program was developed by the St. Paul Public School System (1978). The program serves handicapped youths who are out of school. They are students who have dropped out of special education programs in secondary schools. The manual, entitled Second Year Model Program Proposal for Handicapped Out of School Youth 1979-80, provides a description of the program and its goals. It is the intent of the program to provide a new approach to delivery of service. The program addresses itself to meeting the total needs of these students, that is:

1. Meeting their academic needs
2. Meeting their health/living skills needs
3. Meeting their vocational needs
4. Meeting their social/emotional needs
5. Meeting their community interaction needs.

The program consists of six components. These are:

1. Education Component
    - basic skills
    - life/survival skills
2. Name/School Component
    - social services
    - home/school communication liaison

3. Vocational Component
    - career exploration
    - work experience
4. Student Advocacy Component
    - community agencies
    - court system
5. Out Reach Component
    - child-find
    - assessment
6. Project Outreach
    - dissemination
    - replication

The following is a list of the objectives of this vocationally-oriented program. For a more complete explanation of these objectives, refer to the manual (St. Paul Public School System, 1978). Activities and criteria for evaluation are included for each objective.

1. Objective one
    - To develop a comprehensive plan for serving drop-out handicapped youth
2. Objective two
    - To enroll up to 100 dropout youth at all times in this project and to mutually negotiate and implement individualized educational agreements with at least 75% of these youth
3. Objective three
    - To negotiate and implement individualized educational plans that will result in measurable gain in vocational skills for 2/3 of the identified population as measured by instruments, locally developed and/or selected, given before and after intervention
4. Objective four
    - To negotiate and implement individualized vocational plans that will result in measurable gain in

vocational skills for 2/3 of the identified population as measured by instruments, locally developed and/or selected, given before and after intervention

5. Objective five

   - To assist 50% of those youth writing educational agreements to actually complete their agreement, with a minimum of 25% securing high school diplomas or G.E.D. certificates, and 30% accomplishing vocational training goals

6. Objective six

   - To assure that 60% of those youth completing their Vocational/Educational Training Plan secure employment appropriate to their vocational/educational training objective as measured by a locally developed monitoring system

7. Objective seven

   - To provide Daily Living Skills/Survival Skills to participants in order that they have the opportunity to learn how to manage a home, family, and finances or, at the very least, learn how to become self sufficient and independent.

A handicapped student participating in this program can gain education and socialization skills to become a self-sufficient, employable, young adult.

The out of school youth program offers another, unique service aimed at aiding the parents of participating students. Teachers work with parents who may also need help in preparing for their General Equivalency Diploma (G.E.D.). During the 1977-78 school year, four parents obtained their diplomas.

The staff of the out of school youth program will soon publish two additional manuals. One is entitled, "Techniques of Student/Family Contacts and Involvement". The other, "How to Serve Handicapped Out of School Youth", is a followup to the first manual. It describes, in detail, the program and procedures for implementing an out of school handicapped youth program.

MODEL SIX - THE SERVE PROGRAM

The 916 Area Vo-Tech Institute in White Bear Lake, Minnesota, has developed a well coordinated program for supportive services. The title of the program, SERVE, is an acronym for Special Education Rehabilitation and Vocational Education. The philosophy of SERVE revolves around the involvement and integration of students with special needs into the vocational training programs offered in the school district. The Superintendent and the school board have made a definite, demonstrated commitment to serving special needs students.

SERVE Components

1. Vocational Evaluation and Career Exploration

    - Vocational Evaluation is a systematic process for assessing the vocational training and work potential and work behaviors of special needs students.
    - Vocational Evaluation consists of several major components:

        (referral information)
        (vocational interest tests)
        (work sampling)
        (dexterity tests)
        (training tryouts)
        (behavior observation)
        (vocational evaluation report writing)

    - Career Exploration includes work samples, as well as a one to two week job try out in an actual training program.

2. Supplemental Resource Instruction (SRI)

    - The SERVE supplemental resource instructor's (SRI's) provide instruction supplemental to the regular vocational instruction.
    - The duties of an SRI include:

        (rewriting vocational curriculum)
        (acting as an advocate to special needs students)
        (working with vocational instructors and students in preparing curriculum modifications)

(modifying the class or shop environment)
(preparing alternate test formats for students)
(arranging job tryouts for students upon completion of the vocational evaluation)
(monitoring and assisting students in programs recommended by the vocational evaluator)

3. Related Math and Reading Instruction

   - The SERVE reading and math instructors provide individualized instruction in the basic skill areas needed for success in vocational programs.

4. Job Seeking/Keeping Instruction

   - The job seeking/keeping instruction consists of assisting special needs students with interviewing techniques, filling out job applications, video taping interviews and actual job interviews. The special needs students are referred for job seeking/keeping during their last few months in the vocational training program.

5. Learning Packets

   - At District 916, vocational instructors are responsible for developing their own curricula with input from local advisory committees.
   - Over 6,000 learning packets have been developed to date, many of which utilize audio visual learning aids.
   - Six full-time curriculum specialists are available to assist vocational instructors in developing their own program curriculum.
   - There is articulation between post secondary and secondary programs. This cooperation allows special needs students to make easier transition from a high school to a post secondary vocational training program.
   - The individualized learning packet system also allows for continuous enrollment of students from vocational evaluation into vocational training programs.

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MODEL SEVEN - MICHIGAN INTERAGENCY MODEL

The Michigan Interagency Model and Delivery System of Vocational Education Services for the Handicapped (n.d.) also exemplifies the high quality services which can be provided to handicapped persons when formal service agreements are established at the highest levels of state government.

The directors of vocational rehabilitation service, the special education service, and the vocational technical education service all signed a cooperative agreement in 1975. It contained the following points:

1. The public schools are responsible to assure that handicapped students who cannot complete a normal course of study will have access on an equal opportunity basis to vocational education. Special Education Services will support special education teachers, teacher consultants, and other ancillary personnel. Prevocational and personal adjustment will be the responsibility of the cooperating school district special education staff in conjuction with general education teachers.

   Special education funds will be used to support individual vocational training and special vocational education.

2. It is the policy of Vocational Education Services that special education students should have equal opportunity to access regular vocational education programs. Vocational Education Special Needs funds may be used to support secondary special education students in adapted vocational education program.

   As funds are available, Special Needs Funds will be used to support Postsecondary Vocational Programs for the handicapped and special vocational education programs.

3. Handicapped students whose disability precludes graduation from the normal course of study, must have access to a work study program. Special Education Service Staff will be responsible for work study services where they cannot be handled by the Vocational Education Co-op Coordinator. Vocational Rehabilitation will provide supportive services needed to help the handicapped student succeed in the work study placement.

4. Vocational Rehabilitaton Services is the accountable agent for coordinating post school training and placement of all young handicapped adults 18-25 who have completed an approved course of study or have graduated from a local or intermediate school district special education program.

While this and similar agreements have evolved to keep abreast of changing legal mandates and service needs, the Michigan model remains committed to interagency cooperation which, at a minimum, contains the following:

1. An interagency supervisory level committee which jointly identifies needs, establishes priorities, explores alternatives, and minimizes duplication of services to handcapped persons.
2. A continuous review and updating of specific goals and objectives of each agency's legal and philosophical commitments to ensure effective and productive delivery of services to handicapped persons.
3. Continuous sharing of ideas, problems and conflicts from the local level between field staff and administrative staff of the interagency cooperation committee to allow for new and innovative programming and smooth delivery of services at the local level (Michigan interagency model and delivery system of vocational education services for the handicapped, n.d.).

MODEL EIGHT - OCCUPATIONAL SKILLS PROGRAM

The Western Curriculum Coordination Center at the University of Hawaii has designed the Occupational Skills Program (n.d.). The program exposes and prepares handicapped students for occupational skills belonging to a job family. Students also learn the responsibilities which they must develop to become a reliable worker.

The Occupational Skills Program in Vocational-Training Education is designed for individuals identified as special education students who are enrolled in the high schools. The program basically is for career exploration and skill development in performing simple and specific job tasks belonging to clusters of occupations. These tasks are those performed under supervision and are routine in nature. The tasks of the specific job family at the minimal skill level will be explored in a simulated classroom situation and may also be practiced on the job within industry, business, and public and private agencies.

The general areas are: clerical services, related sales services, supervised child care services, home services, clothing construction and maintenance services, ground maintenance services, shop and building maintenance services, supervised food services, general construction worker, and general mechanical worker.

This program also helps these students relate to others effectively, accept supervision, and acquire some grooming skills toward assuming some responsibilities of being a reliable worker.

The basic academic skill development of these students will be the responsibility of the special education teachers at the school. In addition, selection of students for the Occupational Skills Program will be made by the special education teachers. The job skill instructor who is a part-time hourly employee will cooperate with the special education teacher under this plan. All other state and local agencies that cooperate with the special education program in the schools will be indirectly assisting the Occupational Skills Program.

The Roles and Responsibilities of Participating Members of the Occupational Skills Program

1. The State Staff

   - The state staff will provide direction and support for the implementation of the program.

2. The District Staff

   - The district staff will provide direction and support for the implementation of the program within the districts.

3. The School Administrator

   - The principal of the school or his designate will serve as team leader at the school.

4. The Counselor

   - The counselor, as an Occupational Skills team member, has the responsibility of helping the student and teacher in assessing the many factors relating to appropriate vocational goals. The counselor may acquaint the faculty with the Occupational Skills program and encourage appropriate referrals. The success of the program depends upon the cooperation of all team members which include state and district staff, school administration, the counselor, occupational skills program coordinator, special education teacher and the job skill instructor.

5. The Job Skill Instructor

   - The job skill instructors are occupationally competent in the specific skill areas in which they teach.

6. The Special Education Teacher
7. The Occupational Skills Program Coordinator

Listed below are tasks which need to be performed by the staff as part of the Occupational Skills Program:

1. Survey student's occupational interest
2. Obtain parental permission to participate in O.S.P.
3. Survey industry and unions for job needs and labor needs
4. Locate job skill instructors
5. Identify task analyses for unit (of instruction)
6. Plan units (schedule of activities, related instruction and field trip)
7. Select training site
8. Select and assign students for different units for instruction
9. Process insurance coverage for students in O.S. program
10. Determine equipment and supplies needed for unit
11. Submit program application for approval
12. Secure necessary equipment and supplies including safety needs.

MODEL NINE - MODEL FROM WISCONSIN

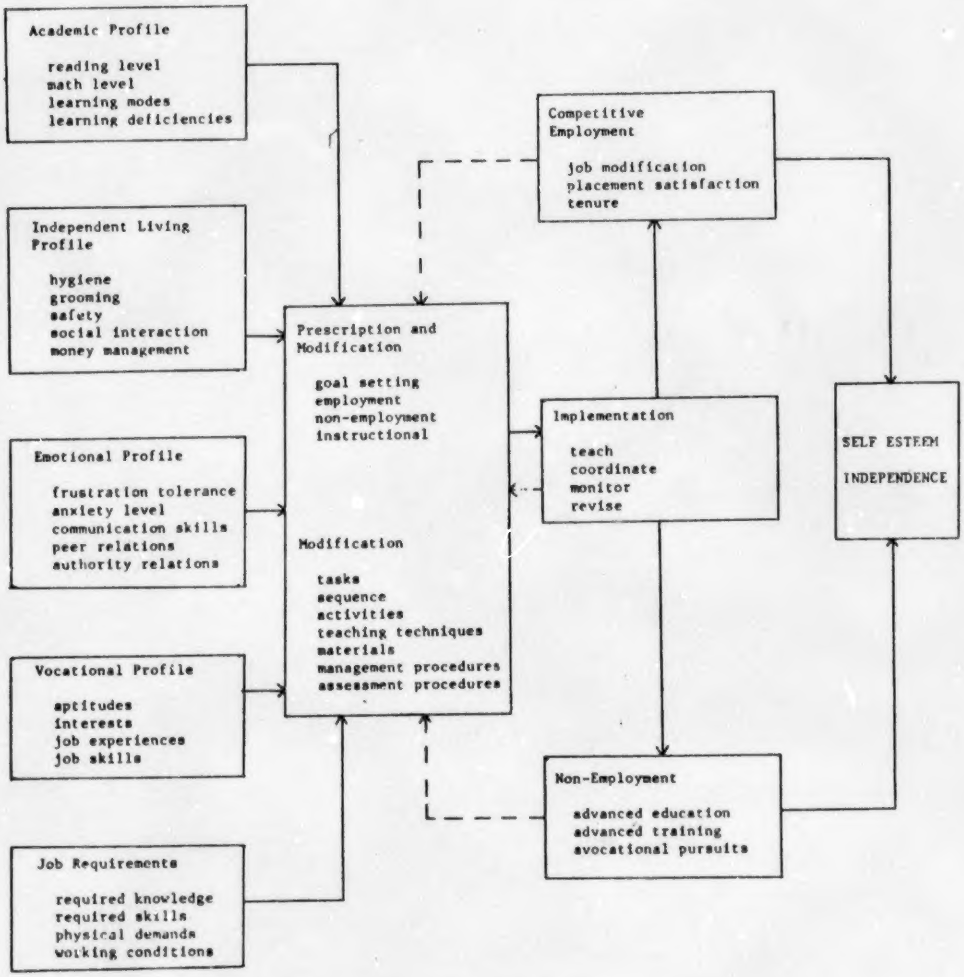
A model illustrating the process to modify vocational education for handicapped students has been developed at the Wisconsin Vocational Studies Center, University of Wisconsin-Madison. The creators, Lloyd Tindall and John Gugerty, have developed a framework for building successful programs for handicapped students. The focus is on clearly defined goals and outcomes. With this as a basis, well organized and properly sequenced programs can be developed. Figure Two graphically depicts the process model. Following Figure Two is a detailed outline which further describes the factors represented in the model.

Categories To Consider When Modifying A Course To Accept Students With Handicaps

1. Assessment and Evaluation Results
    - Do any exist?
    - Are they available to me?
    - Do I have the skill necessary to utilize them?
2. Student's Employment Goals
    - interests
    - aptitudes
    - prior work experience
    - current functional job skills
    - job skills needed - number and type
    - supervision issues - what is likely to be available vs. what the person needs
    - potential stress factors
    - physical demands
    - transporatation factors
3. Occupational Information
    - availability
    - accuracy
    - utility
4. Modification in the School's Physical Plant
    - classroom
    - labs
    - equipment
    - accessibility
    - lavatories

Figure Two

MODIFICATION PROCESS MODEL
FOR THE
VOCATIONAL EDUCATION OF HANDICAPPED STUDENTS


Academic Profile
reading level
math level
learning modes
learning deficiencies
Independent Living Profile
hygiene
grooming
safety
social interaction
money management
Emotional Profile
frustration tolerance
anxiety level
communication skills
peer relations
authority relations
Vocational Profile
aptitudes
interests
job experiences
job skills
Job Requirements
required knowledge
required skills
physical demands
working conditions
Prescription and Modification
goal setting
employment
non-employment
instructional
Modification
tasks
sequence
activities
teaching techniques
materials
management procedures
assessment procedures
Competitive Employment
job modification
placement satisfaction
tenure
Implementation
teach
coordinate
monitor
revise
Non-Employment
advanced education
advanced training
avocational pursuits
SELF ESTEEM
INDEPENDENCE

Wisconsin Vocational Studies Center
University of Wisconsin-Madison

5. Course Content
    - number of objectives-skills-concepts to be taught
    - tasks, subtasks which operationalize objectives
        (number)
        (success criteria)
        (requisite conditions of performance)
    - time constraints
    - reading levels required
    - math levels required, if applicable
    - order of presentation
    - rate of presentation
6. Lesson Plans
    - selection and sequencing of tasks-subtasks
        (for use by entire class)
        (for use by individual students)
7. Text, Manual, Workbook
8. Teaching Materials and Aids for Teacher Use
9. Learning Materials and Aids for Student Use
10. Classroom Management Procedures
11. Teaching Procedures
    - for use with entire class
    - for use with the handicapped student on an individual basis
        (techniques for providing feedback concerning performance)
12. Testing student for mastery of course material
    - content
    - procedures
13. Recordkeeping
    - type
    - quantity
14. Grading and techniques of monitoring progress: types, criteria

15. Emotional Climate of Classroom
    - feelings of nonhandicapped students
    - feelings of handicapped students
    - teacher's feelings
16. Supportive Services
    - types required
    - availability
        (in-house)
        (outside agencies)
17. Coordination of Professional Services to Student
    - role definition
        (in-house professionals)
        (outside agencies)
18. Administrative Policy
    - class placement
    - grading and graduaton requirements
    - support services
    - time factors
        (open entry-exit)
        (fixed enrollment periods)
        (limits for completion)
19. Employer contact-job placement
    - student's role
        (job seeking skills)
        (fixed enrollment periods)
        (limits for completion)
20. Follow-up
    - role definition
    - planning

IMPROVING SERVICE DELIVERY

We have examined several models of vocational education for the handicapped. Each has unique elements. However, the success of these or other models of service delivery depends on the persons responsible for the programs. Thus, appropriate inservice training for these individuals will help improve the quality of service delivery. An inservice training program titled Five H (Formula for Improving Vocational Education for the Handicapped) has been developed in California. The program evolved as a joint venture of the California State Department of Education, the Calfifornia Community Colleges, and the University of California at Los Angeles Estension.

According to the manual's introduction (Goldsmith, 1978-79):

> Project Five H Seminars were designed to serve as a statewide leadership training program to improve the understanding and capabilities of persons responsible for programs of vocational education for individuals with exceptional needs (handicapped)...These responsible educators include such vocational education staff personnel as administrators, directors, supervisors, coordinators, specialists, counselors, deans and enablers at the high school, adult school, and community college levels.

Instructional content of the seminars covers the major areas of awareness, information, and resources. The following is a brief outline of the content:

Part One

1. Attitudes of the General Public Toward Handicapped Individuals

    - the nature of attitudes
    - attitudes and behavior
    - situational influences on attitudes
    - attitudes towards handicapped people in general
    - relationship to other attitudes
    - correlates of attitudes toward handicapped persons
    - attitudes toward specific handicaps

        (physical handicaps)
        (mental illness)
        (mental retardation)

    - the disability hierarchies

2. Architectural Accessibility

   - the problem
   - who is handicapped
   - numbers of disabled people
   - how barriers affect people
   - why do barriers exist
   - professional awareness
   - the small numbers argument
   - cost concerns
   - achieving accessibility

     (construction regulation)
     (design standards)
     (use of standards in codes and laws)
     (standards for accessibility)
     (adopting American National Standards Institute)
     (performance vs. prescriptive standards)

Part Two

Strategies for eliminating sex bias in CETA and vocational education programs.

Part Three

1. Legal Requirements

   - the legal framework
   - requirements of the law

2. Use of handicapped funds

Part Four

1. A model assessment delivery system for inclusion into vocational education programs
2. Suggested staff

3. Assessment Instruments

    - ACD - Assessment of Career Development
    - COATS - Comprehensive Occupational Assessment and Training System
    - COPS - California Occupational Preference System
    - CPP - Career Planning Program
    - CSAP - Career Skills Assessment Program
    - JEVS - Jewish Employment and Vocational Service
    - JOV-O - Judgment of Occupational Behavior - Orientation
    - Micro-Tower - ICD Rehabilitation and Research Center
    - The 16 Personality Factor Questionnaire
    - Project Discovery
    - SAAS - Self-Appraisal and Assessment Structure
    - SCOR - Sonoma County Organization for the Retarded (Developer)
    - SPIB - Social and Prevocational Information Battery
    - VIESA - Vocational Interest, Experience, and Skills Assessment
    - VIEWS - Vocational Information and Evaluation
    - WRIOT - Wide-Range Interest - Opinion Test

4. The Department of Rehabilitation - Look at Vocational Assessment

Part Five

This section describes the Individualized Education Program (IEP).

1. Section One - Awareness
2. Section Two - Assessment
3. Section Three - Orientation/Exploratory
4. Section Four - Vocational Education
5. Section Five - Employment

The Appendix Includes the Following

1. Inventory of School/District Support and Services to Vocational Education for the Handicapped
2. Working Definitions
3. Department of Rehabilitation (a description of the department)
4. Discussion of the film, "A Different Approach"
5. Organizations providing services to handicapped persons
6. Memorandum of Collaboration Between Education and Vocational Rehabilitation Agencies
7. Selected bibliography

Summary

This chapter has looked at a few of the many fine models of service delivery. The reader is encouraged to use the resource list at the end of the chapter to explore other programs.

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Yoshimura, R.J., Suzuki, W.N. *Vocational education for mentally handicapped students, a procedural manual*. Corvallis, Oregon: Oregon State University, 1978.

RESOURCES

For additional information about programs discussed in this chapter, contact:

Model Two

Oregon Department of Education
700 Pringle Parkway S.E.
Salem, Oregon 97310

Model Five

Out of School Youth Program
97 East Central
St. Paul, Minnesota 55101

Model Six

Minnesota Instructional Materials Center
3554 White Bear Avenue
White Bear Lake, Minnesota 55110

Model Eight

East Central Curriculum Management Center
100 North First Street
Springfield, Illinois 62777

or

the Curriculum Management Center which serves your state

For information about other exemplary vocational education programs for the handicapped, contact:

Camden County Vocational & Technical Schools
Special Needs Division
Gloucester Township Campus
Box 566, Berlin-Cross Keys Road
Sicklerville, New Jersey 08081

Career Training Center
610 Ansol Lane
Bakersfield, California 93306

Columbus Community Center
2530 South 500 East
Salt Lake City, Utah 84106

Industry Education Council of California
1575 Old Bayshore Highway
Burlingame, California 94010
"Cross Agency Project for the Education, Training and Placement of the Handicapped"

La Grange Area
Department of Special Education
1301 West Cossitt Avenue
La Grange, Illinois 60525

Oklahoma Secondary Learning Disabilities
Developer/Demonstrator Director
Hillside School, Route 3
Cushing, Oklahoma 74023

Regional Occupational Training Center
665 Wetherell Street
Manchester, Connecticut 06040

South Bend Community School Corporation
Prevocational Education Program
635 South Main Street
South Bend, Indiana 46601

A book entitled "Educational Programs that Work" describes numerous educational programs that are in operation throughout the country. This book can be purchased for $5.50 (pre-paid) from:

Order Department
Far West Lab for Educational Research and Development
1855 Folsom Street
San Francisco, California 94103